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Twentieth Century Classics

Vol. 1. No. 4.

December, 1899.



Birds of Kansas



Issued Monthly.

Price, \$1 per year.

CRANE & COMPANY, PUBLISHERS,
110-112 EAST EIGHTH AVENUE, TOPEKA, KAN.

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THE TWENTIETH CENTURY CLASSICS
AND SCHOOL READINGS

UNDER THE EDITORIAL SUPERVISION OF

W. M. DAVIDSON

SUPERINTENDENT OF THE PUBLIC SCHOOLS OF TOPEKA, KANSAS

311
BIRDS OF KANSAS

BIRDS OF KANSAS

BY

BENJAMIN F. EYER

Teacher in Science, Topeka High School.

*Think, every morning when the sun peeps through
The dim, leaf-latticed windows of the grove,
How jubilant the happy birds renew
Their old, melodious madrigals of love.
And when you think of this, remember too
'Tis always morning somewhere, and above
The awakening continents, from shore to shore,
Somewhere the birds are singing evermore.*

—Longfellow.

CRANE & COMPANY, PUBLISHERS

TOPEKA, KANSAS

1900

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Birds

INTRODUCTION.

"You must have the bird in your heart before you can find it in the bush; and when once you have it in your heart the finding of it in the bush is a secondary matter."—*John Burroughs*.

We may with profit take a look at the life and ways of some of our common birds, and study with a growing interest a few of the parts that characterize them and that fit them so perfectly for their life in the air. There is a perpetual interest centering in the study of the adaptation and fitness of the varied forms of life as it may be seen about every home, "be it ever so humble," and that, too, with no other equipment than one's eyes and patience.

Fortunate is that person whose home or school life has been of such a character as to develop a love for the beautiful in nature. He may drink from the same fountain with poets and artists, and picture to himself the greatest works of art, and read first hand the most beautiful poems in all the realms of literature.

"So it is with everything; so it is with the birds. The interest they excite is of all grades, from that which looks upon them as items of millinery, up to that of the makers of ornithological systems, and who ransack the world for specimens, and who have no doubt that the chief end of a bird is to be named and catalogued—the more synonyms the better. Somewhere between these two extremes comes the person whose interest in birds is friendly rather than scientific; who has little taste for shooting, and less for dissecting; who delights in the living creatures

themselves, and counts a bird in the bush worth two in the hand. Such a person, if he is intelligent, makes good use of the best works on ornithology; he would not know how to get along without them; but he studies most the birds themselves, and after awhile he begins to associate them on a plan of his own. Not that he mistrusts the approximate correctness of the received classification, or ceases to find it of daily service; but though it were as accurate as the multiplication table, it is based (and rightly, no doubt) on anatomical structure alone; it rates birds as bodies, and nothing else; while to the person of whom we are speaking, birds are, first of all, souls; his interest in them is, as we say, personal; and we are none of us in the habit of grouping our friends according to height, or complexion, or any other physical peculiarity."

The bright plumage and sweet, cheery song of the bird fills every heart with pleasure, unuttered, perhaps, or expressed in such words as Bryant's "To a Waterfowl:"

Whither, 'midst falling dew,
While glow the heavens with the last steps of day,
Far, through their rosy depths, dost thou pursue
Thy solitary way?

Vainly the fowler's eye
Might mark thy distant flight to do thee wrong,
As, darkly seen against the crimson sky,
Thy figure floats along.

Seek 'st thou the plashy brink
Of weedy lake, or marge of river wide,
Or where the rocking billows rise and sink
On the chafed ocean side?

There is a Power whose care
Teaches thy way along that pathless coast,
The desert and illimitable air,
Lone wandering, but not lost.

All day thy wings have fann'd,
At that far height, the cold, thin atmosphere,
Yet stoop not, weary, to the welcome land,
Though the dark night is near.

And soon that toil shall end;
Soon shalt thou find a summer home and rest,
And scream among thy fellows; reeds shall bend
Soon o'er thy sheltered nest.

Thou'rt gone, the abyss of heaven
Hath swallowed up thy form; yet, on my heart,
Deeply hath sunk the lesson thou hast given,
And shall not soon depart.

He, who, from zone to zone,
Guides through the boundless sky thy certain flight,
In the long way that I must tread alone,
Will lead my steps aright.

BIRDS OF KANSAS.

THE PLUMAGE.

In the spring a fuller crimson comes upon the robin's breast ;
In the spring the wanton lapwing gets himself another crest ;
In the spring a livelier iris changes on the burnished dove.

— *Tennyson.*

The eye never tires of watching the easy, graceful flight of the bird as it makes a trackless path in the air, sometimes far above the hills and valleys, as the hawk or eagle, having always before it a view, magnificent. No other animal that flies does so by any such apparatus as the bird employs. Flight in the bird is made possible by means of outgrowths of the skin—the feathers. When they are removed from a wing it looks more like an arm than an organ of flight, and, indeed, it is but the fore-limb of the bird, and is almost like the arm of man. The wing of a chicken, as it appears on the table, affords an excellent opportunity for comparison. The feathers that grow on the wing convert it into a more useful instrument than an arm would be in the life of a bird. The large feathers of the wing have a wider web on the inner side of the shaft than on the outer. This is because the inner web underlies the next inner feather and gives a firm resisting surface against which the air reacts to support the bird in the air. The webs of the large, strong feathers of the wing and tail can be separated into many small, thread-like parts (barbs)

attached to the large central shaft that extends the entire length of the feather. The barbs interlock with each other by means of still smaller parts growing out from them, giving the web a remarkable firmness. The inner end of the feather terminates in the quill, which is connected with the blood-vessels of the skin that supply it with nourishment. They are moved by muscles just under the skin and have a limited period of growth, when they fall out and new ones appear. This gives rise to the annual (sometimes oftener) moult. The duck family lose their wing-feathers nearly all at the same time and are hence unable to fly for a time.

Feathers do not all answer to the above description. Some, under the outer layer, are soft and fluffy because the barbs of the web are not bound together by the little hooks which we found on the wing-feathers. These are called down-feathers. Then there are the long hair-like forms plainly seen after "picking" a chicken, and which are removed by singeing. These are called hairy feathers, because they look so much like hairs.

A singular fact about the arrangement of feathers is that they do not grow from every part of the skin that is apparently covered by them, but grow in tracts, so that there are feather tracts and bare tracts. "If we compare a bird's skin to a well-kept park, part woodland, part lawn, where they do not grow is the lawn." The ostrich and penguin are exceptions to this, for they have a continuous feathering on every part of the skin.

We are quite sure, too, that the bird's coat is warm, making an excellent wrap. It serves him in this quite as well as in flying, for his heart beats much faster than ours and he requires more oxygen in proportion to his size than we do; and were it not for this warm coat, much of his heat would be lost.

The irregularities of the body are filled up and made smooth, so that it offers the least amount of resistance when passing through the air. No matter how great the exertion, there is no perspiration. Perhaps it is because perspiration would cool the body too much by evaporation or cause the feathers to mat, and thus seriously interfere with flight.

BEAKS AND CLAWS.

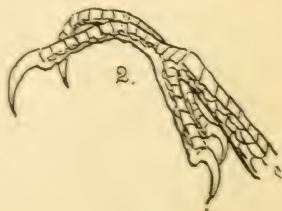
You slay them all! and wherefore? for the gain
Of a scant handful more or less of wheat.
Or rye, or barley, or some other grain,
Scratched up at random by industrious feet,
Searching for worm or weevil after rain!

—*Longfellow.*

Beaks and claws are more strikingly diversified than any other parts of the body, because they are so closely identified with the daily necessities of life. They are the bird's best helpers—his hands and feet; and it is not at all unlikely that these parts alone can tell us a good deal about bird-ways.

Downy's beak is so sharp and chisel-like that, guided by a sharp eye and active head, it soon digs a comfortable home in the old dead limb. The hammering of the Flicker in early spring is a most familiar sound. A number of these birds frequented a group of large cottonwood trees every year, where they regularly nested. Early in the season they would be on hand, drumming merrily on the dry limbs of the old trees and calling loudly to their mates. These were familiar sounds in the warm, bright days of April. No spring day in the woods would be complete without the musical drumming of the Woodpecker.

What sort of a foot would be needed for such a climbing, pecking bird? When linemen who are sent out to repair telegraph lines need to climb to the top of a tall pole, they buckle



on their feet a pair of iron claws that can be thrust into the wood, yet not without fear of slipping. The Woodpecker has no such fear. His toes are arranged in pairs, with sharp claws, two in front and two behind, which bite into the bark or wood and insure "good footing."

But we must not conclude that all birds that climb will have yoke-toes like the Woodpecker, for the Nuthatches and Creepers have a foot more like a robin.

The fish-hooks that fill so large a place in the life of a boy when the ice has cleared from the creeks and the days are warm and inviting, are not unlike the instruments used by one of our American birds, the Osprey or Fishhawk, for the same purpose. (See cut No. 2.) The following account of the Osprey is given by Wilson:

"The flight of the Fishhawk, his maneuvers while in search of fish, and his manner of seizing his prey, are deserving of particular notice. In leaving the nest he usually flies direct till he comes to the sea, then sails around in many curving lines, turning sometimes in the air as on a pivot, apparently without the least exertion, rarely moving his wings, his legs extended in a straight line behind, and his remarkable length and curvature, or bend of wing, distinguishes him from all other hawks. The height at which he thus elegantly glides is various, from one hundred to one hundred fifty and two hundred feet, sometimes much higher, all the while calmly reconnoitering the face of the deep below. Suddenly he is seen to check his course, as if struck by a particular object, which he seems to survey for a few moments with such steadiness that he appears fixed in the air, flapping his wings. This object, however, he abandons, or rather, the fish he had in his eye disappeared, and he is again seen sailing around as before. Now his attention is again arrested, and he descends with great rapidity, but ere he reaches the surface,

shoots off on another course, as if ashamed that a second victim has escaped him. He now sails at a short height above the surface, and by a zig-zag descent, and without seeming to dip his feet in the water, seizes a fish, which, after carrying a short distance, he probably drops, or yields up to the Bald Eagle, and again ascends by easy spiral circles to the higher regions of the air, where he glides about in all the ease and majesty of his species. At once, from this sublime aerial height, he descends like a perpendicular torrent, plunging into the sea with a loud, rushing sound, and with the certainty of a rifle. In a few moments he emerges, bearing in his claws his struggling prey, which he always carries head foremost, and, having risen a few feet above the surface, shakes himself as a water-spaniel would do, and directs his heavy, laborious course directly for the land."

It will eat nothing but live fish, and will not, it is said, pick up one that is accidentally dropped from its talons.



All of our hawks and owls have a well-developed seizing, or raptorial foot (see cut No. 3), which is also adapted for perching, and to work with it there is a strong hooked beak (see cut No. 1), fitted for tearing tough skins and flesh. The eye, too, as a helper to beak and claws, is large and sharp, and

can detect a moving animal suitable for food at long distances.

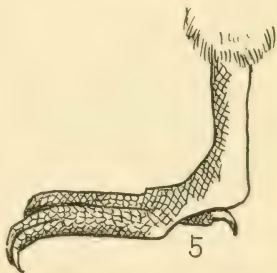
A number of young hawks were once taken by the writer, and an attempt made to tame them. They were carried from the place of



capture, a mile distant, on a stick to which they held by their claws. They would eat bits of meat and live mice with the greatest relish. When a dog or cat came too near, an encounter of claws and fur was sure to result. A curious habit with them was that of placing themselves upon their backs when they were suddenly attacked, and fighting with feet uppermost. It was a sad day for the dog who got his nose too near their unerring talons.

At another time a nest containing young, high up on an overhanging limb of a cottonwood tree, was approached. The parent bird promptly came upon the scene and refused to leave, although not actually attacking the intruder. They were, to say the least, exceedingly tame.

There is another fisherman better known to us than the Osprey. He justly deserves the name he bears—Kingfisher. He flies up and down our larger creeks and rivers, sure to know where fish may be taken in season and out. His legs are very short and hardly used for walking. The outer and inner toes are grown together, making a flat sole upon which he can comfortably sit on the limb of a tree overhanging a stream, watching, waiting. (See cut No. 5.) He spies a fish below him. Down he goes with a harsh sound, a hungry chuckle, and with his long sharp bill catches his victim, even plunging into the water after it. If the fish is small, he swallows it at once. If too large for this, he carries it away to his favorite perch and beats it soft against a limb.



In this type it is the beak that is especially adapted for fishing, and not the claws. He cannot tear the fish to pieces, as does the Hawk, for his bill is straight and

sharp-pointed, but must swallow it whole. Imagine what a time he must have if his capture is over-large!

This may remind you of another fisherman frequenting our ponds and marshes—the Heron—that has a longer bill (see cut No. 3, bill) than the Kingfisher, and long stilt-like legs. This spear-man—for such he really is—can fly as well as the Kingfisher, but he



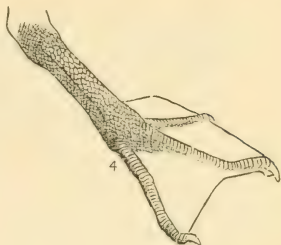
does not need to fly down after the fish, frogs and other water animals he considers palatable. He wades out into the water among the grasses and rushes and waits with much patience for his food to come near him. (See cut No. 1.) If you were to steal near enough to one you would surely think him asleep. But wait!—here comes a lunch dangerously near. All has changed; with great rapidity he darts his bill into the water, and if it is a fish, swallows it head foremost, so that the spines will not interfere. If not caught so that it can be swallowed that way, it is tossed into the air and again caught.



This type is called the *walking* or *wading* foot. It has not the grasping power of the Hawk's foot, and has a small web between the outer and middle toes.

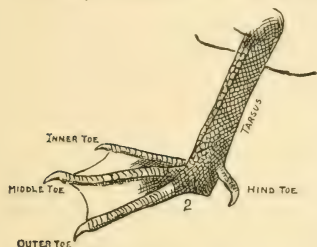
It is not difficult to read the story of a foot where the toes are connected by a web. It looks so much like a paddle that it would at once be associated with the water. They are not at all like the feet we have already examined. The hand function of grasping has been lost, and they are not so well fitted for walking, as one can see by the clumsy, awkward steps of the Ducks and Geese. There are several kinds of the *swimming* foot. The Pelican has

the three toes in front and the hind toe, all joined together by a web (toti-palmate) (see cut No. 4); the Ducks and Geese have the three front toes only united (palmate) (see cut No. 2); while in the "Mud Hen," "Coot," each toe has a separate

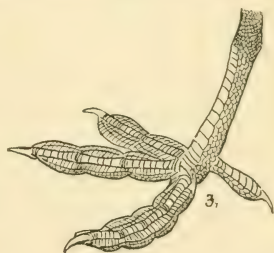


lobed membrane on it (lobed). (See cut No. 3).

A type that must not be overlooked is the perching foot (see cut No. 1) of the song birds, of which those of "Downy," the Kingfisher and the Hawk are varieties



adapted for special uses. The toes of the robin are entirely separate. They are all on the same level, and the hind toe is long, in order to more effectually grasp a twig. The toes do not spread out so much as in the Hawk, nor are they so rough on



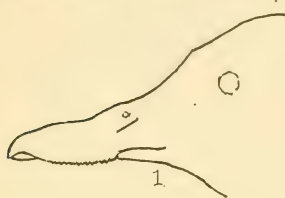
the under surface. This is the perching foot. (See cut No. 1).

To sum up, then, we have noticed three principal kinds of feet,—the perching, the walking or wading, and the swimming.

A bird that finds its particular kind of food from the water's edge, or on the bottom where the water is shallow, needs a wide bill with an



arrangement to let the water escape (see cut No. 1) that was taken up with the food. This is the plan in the ducks and geese, where the edges of the bill are finely ridged.



The Nighthawk,—which is not one of the Hawk family at all,—like the Whippoorwill, its nearest relative, comes out

bright and active about twilight in search of its favorite insect food. A look at its bill would at once convince you that it is neither a fisherman, a seed-eater, nor a bird of prey, for its bill is very small. What is lacking in this respect, however, is made up in the size of the mouth, which opens widely, making a splendid trap for the moths and other night-flying insects, which it eats. The wing, too, is long, giving the bird speed and agility.

In the Whippoorwill, the mouth is thickly set with long bristles that assist in trapping the luckless insect. (See cut No. 4.) On such journeys the Whippoorwills frequently approach houses, and, regardless of their surroundings, sing with remarkable clearness and power.

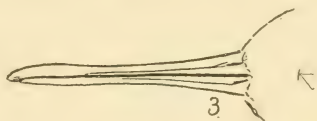
The Swallows are another family of insect-eaters. They, too, have a small bill and large mouth. Small as is the bill, one of our Swallows (Barn Swallow) makes a kind of hod of it, in which he carries pellets of mud for his nest.



Along the banks of a small pond a large number of dead, but recently tenanted, snail-shells could be seen, and in the shallow water the live ones were abundant.

The tracks on the bank all about gave unmistakable evidence of the cause—the Sandpiper, a shore bird with wading legs and long, pointed beak, which he had used to take the shells out of the water, and had then picked out their tender flesh, leaving the empty shells along the shore.

Some of the Snipes use their long, flexible beaks to probe into the soft mud in search of worms (see cut No. 3), which they are often able to trace by means of the sensitive tip of the beak.



The seed-eating birds—Sparrow, Quail, and Chicken—have a somewhat cone-shaped bill, very strong, and with sharp cutting edges.

The tongues are not without interest, although not usually noticed. The Woodpecker has a long, barbed tongue tipped with a horny spine. This he shoots out with wonderful precision, as the following incident related by Burroughs of a tame "high-hole" (Flicker) will show:

"Did you ever notice that the high-hole never eats anything that he cannot pick up with his tongue? At least this was the case with a young one I took from the nest and tamed. He could thrust out his tongue two or three inches, and it was amusing to see his efforts to eat currants from the hand. He would run out his tongue and try to stick it to the currant; failing in that, he would bend his tongue around it like a hook and try to raise it by a sudden jerk. But he never succeeded, the round fruit would roll and slip away every time. He never seemed to think of taking it in his beak. His tongue was in constant use to find out the nature of everything he saw; a nail-hole in a board, or any similar hole, was carefully explored. If he was held near the face, he

would soon be attracted by the eye and thrust his tongue into it. In this way he gained the respect of a number of half-grown cats that were around the house.

“I wished to make them familiar with each other, so there would be less danger of their killing him. So I would take them both on my knees, when the bird would soon notice the kitten’s eyes, and leveling his bill as carefully as a marksman levels his rifle, he would remain so a minute, when he would dart his tongue into the cat’s eye. This was held by the cats to be very mysterious; being struck in the eye by something invisible to them. They soon acquired such a terror of him that they would avoid him and run away whenever they saw his bill turned in their direction. He never would swallow a grasshopper, even when it was placed in his throat; he would shake himself until he had thrown it out of his mouth. His ‘best hold’ was ants. He never was surprised at anything, and never was afraid of anything. He would drive the turkey gobbler and the rooster. I would turn over the stones and dig into ant-hills for him, and he would lick up the ants so fast that a stream of them seemed going into his mouth unceasingly.”

The Hummingbird that, like the butterfly, sips nectar, has a “double-barreled tongue—two tubes placed side by side, serving as siphons to extract the nectar of flowers.”

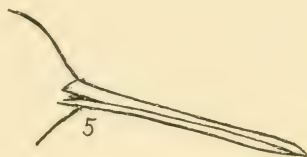
Ducks and Geese have a large, fleshy tongue, while the Kingfisher can hardly be said to have one at all.

Besides the use of bills as hands to supply the needs of the body, they are extremely useful tools with which to construct the home—the object of so much care and anxiety to the parent birds. We are hardly aware of the great number of nests near at hand till winter robs them of their leafy screen. Then we see how skillfully the little builders have hidden their homes from the weather and their numerous enemies.

With the beaks, also, the feathers are neatly combed and smoothed. When they wish to oil their feathers they squeeze a drop of oil out of the oil-can at the root of the tail, and then, passing the feathers through the beak, oil and smooth them. The oil gland is always found in waterfowls, that need to have a water-proof plumage.



Fishing bill of Pelican, showing large pouch.



Awl-shaped bill of Humming Bird.

TRAVELING AND WOOING.

In sunshine and tempest, the seasons go by ;
The orchards of April grow warm to the eye ;
More joyful than daylight, the beauty they bring —
The first of Auroras, the presage of spring !

Across the bright vista of hillside and plain

The note of the wood-dove falls mellow as rain ;

The snows are retreating,

The river runs clear,—

Then list to the greeting, and blessed be the year !

—*Dora Read Goodale.*

We may divide our birds, according to their habits of travel, into summer birds, winter birds, and resident birds. Before the frost and snows of winter lock up the favorite food of our summer songsters, they are away for the warm sunny climes of the South, where their food can be easily obtained. Here they remain till the northern winter is past and the bright, warm sunshine of spring is opening the winter home of the insect and making the frozen earth alive again. Were it not for the scarcity of food in winter and the cold, the birds would no doubt remain during the year in those localities where they now find it agreeable to nest. We have often seen large flocks of blackbirds and swallows fly about in a restless way for a few days in autumn, preparing for their long journey. They suddenly take their departure, and we see no more of them till spring. If we were in the South in early spring we should see the same thing repeated as they prepare to go North. Great numbers of birds pass over us on their way from their summer homes in the far North

to their winter retreats in the South and return again in spring, and yet we are scarcely aware of it. They prefer to travel by night, stopping for rest and food by day.

It is a long journey from Alaska or Greenland to Central America or the West Indies, and yet some of the little birds, like our Fox Sparrow, that spend the winter with us, summer in the Arctic regions. Others make a trip from Greenland to Central America. They are fleet of wing, and can go faster than the fastest express train. Mr. Wilson estimated that many of them fly faster than a mile a minute, so that with a few stops for rest and food, it would not take long to travel several thousand miles. Flying high above the surface of the earth, they get a "bird's-eye" view of our continent, and are probably guided in their travel by the mountains, forests and river-courses.

Our resident birds are with us winter and summer. The Bluebird, Hairy Woodpecker, Downy Woodpecker, Hawks and Owls, Quails, the Flicker, Blue Jay, Meadow Lark, Goldfinch, Cardinal, Nuthatch, Chickadee, and Robin are among the number of naturalized citizens. The Bluebird, Meadow Lark, and Robin are in tune with the first touch of spring, while the Cardinal cannot wait so long: he must whistle his good cheer for us in the bright days of winter.

During the winter season they must depend chiefly upon winter berries, weed seeds, and insect eggs and larvæ that are snugly packed away in the bark of trees; they must often suffer from hunger and cold when for days snow and ice cover the ground and trees. At such times they often come about our doors and will not refuse a kindly crumb thrown out to them. The good they will do in orchard and garden when the noxious insects put in an appearance will repay with interest any attention they have received at

our hands, and besides, they will stay about our homes and charm us with their songs.

"The demands of nature are paramount, and in the sharpness of hunger one will not be over-fastidious as to the company he keeps. One morning, when the newly fallen snow had seriously limited the natural supplies of food, I found an incongruous but apparently happy family feeding most amicably at a spot where provision is regularly made—a gathering composed of Peacocks, Pigeons, several squirrels, English Sparrows, "White Throats," Cardinals, and a huge but famishing rat! While the rest of the company did not openly resent the intrusion of this base quadruped, and merely ignored him in the most polite and distant manner, it was evident that he felt an indescribable chill in the atmosphere, for he was plainly ill at ease amid so much beauty and elegance, and he soon made his own motion, and seconded it, to withdraw."

Before the nest is begun a very important matter must be settled. Each bird selects his mate, to whom for a longer or shorter time he pays strict attention. The ways of wooing are very interesting. Some birds have a very short and simple courtship, hardly seeming to woo at all. Others go through an elaborate courtship. Audubon gives an account of the mating of the Great Blue Heron, one of our summer residents:

"In Florida I have seen hundreds of them collected in the course of the morning. The males walk about with an air of great dignity, nodding defiance to their rivals, and the females croak to invite the males to pay their addresses to them. The females utter their coaxing notes all at once, and as each male evinces an equal desire to please the object of his affection, he has to encounter the enmity of many an adversary, who, with little attention

to politeness, opens his powerful bill, throws out his wings, and rushes with fury on his foe. Each attack is carefully guarded against, blows are exchanged for blows; one would think that a single well-aimed thrust might suffice to inflict death, but the strokes are parried with as much art as an expert swordsman would employ; and although I have watched these birds for half an hour at a time as they fought on the ground, I never yet saw one killed on such occasion; but I have often seen one felled and trampled upon, even after incubation had commenced. These combats over, the males and females leave the place in pairs."

Bradford Torrey, in his "Birds in the Bush," gives an account of Robin's way of winning his mate:

"The American Robin, for instance, is far from being a bird of exceptional refinement. His nest is rude, not to say slovenly, and his general deportment is unmistakably common. But watch him when he goes a-wooing, and you will begin to feel quite a new respect for him. How gently he approaches his beloved! How carefully he avoids ever coming disrespectfully near! No sparrow-like screaming, no dancing about, no melodramatic gesticulations. If she moves from one side of the tree to the other, or to the tree adjoining, he follows in silence. Yet every movement is a petition, an assurance that his heart is hers and ever must be. The action is extremely simple; there is nothing of which to make an eloquent description; but I should pity the man who would witness it with indifference. Not that the robin's suit is always carried on in the same way; he is much too versatile for that. On one occasion, at least, I saw him holding himself absolutely motionless, in a horizontal posture, staring at his sweetheart as if he would charm her with his gaze, and emitting all the while a subdued hissing sound.

. . . It ended with his suddenly darting at the female, who took wing and was pursued."

Our beautiful little Goldfinches, that are so sombre in winter as to be scarcely recognized as the same bird that is so brightly colored in summer, nest late in the season; the latter part of June or in July. But all the time, from early spring, the male is sporting his attractive coat of yellow and calls lovingly to his mate. It is a wise provision of nature that the brightly colored Goldfinches should put on a plain garb in winter, when the leafless and barren trees would make a brighter suit a deadly mark for its enemies.

The Golden-winged Woodpecker, or "Flicker," not only uses his bill to procure his food and build his home, but in spring carries on a drumming on the most resonant limb he can find, with the object of wooing a suitable mate. Sometimes they drum to each other after they are happily mated, as though renewing their mutual vows. One bird writer says that he saw two Flickers clinging to a shellbark tree, one about fifteen feet above the other, and each had a strip of loose bark before it. First the lower one would beat his drum, softly, then he would stop and hold his head back to listen; the other would answer him.

WHERE AND HOW THEY BUILD.

They 'll come again to the apple tree —
Robin and all the rest —
When the orchard branches are fair to see
In the snow of the blossoms dressed,
And the prettiest thing in the world will be
The building of the nest.

—*M. E. Sangster.*

Nesting-time is a happy time, and an anxious one, too, for the parent birds. It is the season of song and expectation. We are made more cheerful by their songs, as well as the nesting mother, to whom the mate pours out his volumes of melody.

The ways of different birds at this time are very interesting, and teach us many beautiful lessons. The parent birds show the tenderest care and the most faithful devotion to their nest of precious eggs or nestlings.

The home of a bird has an attraction for us that is not possessed by the home of a mouse or a bumblebee. It is more like a human habitation. Like people, they choose various locations, sometimes changing after the foundation is well laid. The most common location is in the trees.

Warblers build in the very top branches; the Orioles select an outer branch, while the Hawks and Crows like to build close against the trunk, and the Woodpeckers chisel holes into the trunk. The large birds of prey choose crags; the Larks and Sandpipers, the ground; Herons and Ducks, the marshes; Bank Swallows and Kingfishers dig holes in the banks of streams; and some

of our water birds—Coots and Rails—build their nests on the rushes in the water.

They use a great variety of building material, which varies considerably according to location. Here are a few: hay, hair, bark, moss, hog bristles, paper, twine, mud, thistle down, rags, feathers, snake-skins.

There are many different ways of building, both as to style and material, so that the little architect may often be known by a look at his home. Like the different races of men, some build wigwams, tents, mud houses, or brown-stone palaces, according to their tastes.

Rather than "clean house" every spring, most birds make a new, clean home, and take great delight in it, working and singing all the while. A few clean and repair the old nest; among these are the Barn Swallows. The Cowbirds, one of the Blackbird family, to which family the splendid builders, the Orioles, also belong, take no pleasure in nest-building. They use the nests of other birds. A number of water birds deposit their eggs in depressions which they make in the sand, using little or no other material. Some of the Terns that visit us in migration belong to this class.

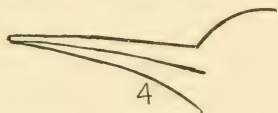
The eggs of the Whippoorwill are placed in a little hollow in the ground, or on the bare rocks, with little or no nest material surrounding them. Sometimes, however, the nest and sitting bird are concealed in bushes and among the leaves. The color of the bird is so much like the brown leaves and earth that it is very difficult to see them on the nest—this is one of nature's ways of protecting the helpless birds against their many enemies. When the nest is approached the parent bird will not stir till almost trampled upon.

One would think that when more than one brood is reared in a season the old nest would be good enough for

the second brood, but this is the exception. A new nest is usually made. The Eagles and Osprey use the old nest for a number of years, each year doing some repairing and enlarging, when in time it grows to enormous proportions.

The Kingfisher and Bank Swallow like to dig deep holes in the bank of a stream for their home. The Kingfisher takes a week or more to build his tunnel. It is from five to fifteen feet deep, turning to the right or left and ending in a larger space where the eggs are laid. This bird has a habit of ejecting the bones of the fish it eats around the nest.

“Downy” prefers neither the tree-top nor the earth for his habitation. He likes to use his sharp bill (see cut No. 4) to chisel out a home in the trunk of the tree. The hole he cuts is almost a perfect circle. The male does most of the work. Cunning little creatures, they carry the chips away from the tree where the nest is to be, to keep the hungry egg-sucker and bird-eater off the scent.



It is said that some of our Woodpeckers make an excavation each fall for a winter home, and that a new one is probably chipped out for the nest each spring.

The Woodpecker nestlings when a few days old like to try their climbers, so they cling to the sides of the hole in preference to staying at the bottom.

Certainly there is nothing very attractive in the lining of the nest. Nothing but the chips made in building are used for covering the bottom.

How different is the home of the little Goldfinch (Wild Canary). Here is a dainty little cup made late in the season and lined with the softest material to be had—the down of the thistle seeds. So cosy that the tiny little nestlings, themselves soft and tender, are quite comfort-

able, and no doubt prefer this home to any that man could build.

The Green Heron, though he spends his time wading about in the ponds and marshes, likes to build in the trees near his favorite haunts. His nest is composed of twigs loosely put together. Sometimes a number of Herons build in one large tree. A large cottonwood tree near the Kansas river has seven nests in it.

The Baltimore Orioles, which you remember are relatives of the Cowbirds, are famous weavers, and build a beautiful nest. They select a side branch and build near the outer end, away from danger, and where the summer breezes can rock the cradle with loving tenderness.

A singular case is reported from Colorado of an Oriole that had taken two mates, one after the nest was completed; so, to accommodate the new member of the family, an addition was built to the first nest. Here they reared the two broods in perfect harmony.

The Oriole uses its bill as a needle, weaving bits of yarn, horse-hair, rags, paper, strips of bark and grasses into the delicate basket, giving it shape and symmetry with its body.

In an early day, before the advent of the chimney, the little Chimney Swift built its nest in hollow trees. Now they also use chimneys, probably as offering greater protection. The nest is made of small twigs of about the same length and thickness. These it breaks from the trees while on the wing. They are cemented together and to the wall by saliva, which is secreted more abundantly during nesting-time. Anyone who has ever removed these nests will concede that the work is well done. The Chinese Swift builds its nest of saliva without the sticks. The Orientals eat this kind of nest, and consider it a great delicacy.

Some of the birds upon whom the Cowbird imposes an egg for incubation resent the intrusion, and skillfully build another floor in the nest, covering up the foreign egg, and begin over again on the second floor. Our Yellow Warbler is known to do this.

The little Screech Owl is another tree-builder, but he will not reject a cosy place in a barn or shed. His colors and quiet ways are very helpful to him. Boys are well aware of the fact that an Owl is hard to find—he is to be heard, not seen. Not, however, is he to be heard when flying, for the feathers have an extra finish of soft, silky, down that makes the wing-beats silent. He likes a hollow tree for his home, making it comfortable and cosy with leaves and feathers. He has cultivated a taste for the English Sparrow. This is several points in his favor.

The Crested Flycatcher, a cousin to the Kingbird, shows a queer taste in selecting material for interior decoration. Besides the usual building materials—twigs, grasses, and rootlets—it does not consider the furnishings quite complete till a cast-off snake-skin is secured and worked in. It is hard to account for this reptilian taste.

A close observer of birds writes that he once saw this Flycatcher pick up an onion-skin and carry it off, thinking, perhaps, that it was a snake-skin. Mr. Goss relates that in the month of June, 1887, a pair built a nest in one of the cannons on the State-house grounds at Topeka. One egg was laid, but unfortunately at that time the cannon was brought into use for drill, and the nest destroyed.

The Barn Swallow is a clever little plasterer. The bowl-shaped nest plastered against the side of a barn, or under the eaves, is composed of little pieces of mud,

mixed with straws to give it greater security. It is lined with feathers, and is placed where the rain is not likely to wash it away, and completely satisfies our little swift-winged bird.

IN THE NEST AND AT LUNCH.

Oh, the dainty pouches
Hanging all along
Under larches
And green arches
Where birds throng!
For our pleasure,
In rich measure,
They will scatter forth their treasure,—
Golden notes
From tiny throats,
And pockets full of song!

—*Josephine Pollard.*

The nest nicely made to the taste of the happy pair, and hidden in some suitable place, the period of expectancy begins. Here the devoted mother-bird exercises the greatest care for her eggs, and displays at times remarkable boldness. It is at such times that she shows great tact and many artifices to mislead the nest-hunter.

The period of incubation extends from about ten days for some of the smaller birds, as the Wren, to fifty or sixty for the Ostrich. The mother-bird is, in general, the sitter. However, both male and female may incubate. When the eggs are kept at a temperature of about one hundred degrees, the germ cell soon breaks up into a mass of cells, which later form the organs and parts of the chick. While the embryo is developing thus, it is absorbing or feeding upon the rich food supply in the "yolk." When the food is all consumed the chick pecks its way out of the shell by means of a little tube on the end of its bill with

which nature has provided it. This little "egg tooth," as it is popularly called, is then absorbed, for there is no further use for it.

Some nestlings can run about and help themselves as soon as they come out of the shell, and are covered with soft, downy feathers; others, helpless for a time after hatching, must have food brought to them.

We can divide the newly hatched nestlings into two classes: those that come out of the egg featherless and helpless (altricial), and those that are hatched with a coat of down and can run about after the parent bird and help themselves (precocial).

We may suppose, too, that the birds that build such good basket-like nests in the trees away from danger do so for the sake of their helpless young, while the Wild Turkey, the Prairie Chicken, and the Quail, whose young are able to run about at once, make their nests on the ground. One naturalist says he has seen the young of the Wild Turkey run about with portions of the shell still clinging to them.

The behavior of the mother-bird while incubating is often very attractive to a bird-lover. Bradford Torrey, in his account of a "Woodland Intimate," relates his experience with a Solitary Vireo (Blue-headed) while nesting. He first approached the nest rapidly, thinking to come up closely by surprise. When he came to a stand-still his eyes were within a foot of the bird. He placed his hand gently against the bottom of the nest. At this she partly arose and craned her neck to see what was going on, but soon settled back again. Each day he called to see her, and was permitted to stroke her feathers, and when his hand was placed on her head she pecked his finger in a pretty, gentle way. On another day he brought her food consisting of insects; these she ate from his hand.

The male, however, was shy, and would not permit such intimacy.

The helpless nestlings must be fed, and this the parent, or parents, as the case may be, proceed to do in many curious and interesting ways.

The bird parents are kept very busy when the nestlings open their wide mouths and call for food. The Robins are not at all timid at this time, and are very familiar figures running over gardens and lawns looking for earthworms and grubs. They can see them when we cannot, and stop here and there at our very doorsteps to pull a stubborn worm out of its retreat. It is hard to escape his keen eyes. When a load is secured he flies to the waiting nest and divides it among the hungry mouths.

A few years ago the writer saw three young Kingbirds sitting on a fence, all facing in the same direction. They seemed almost grown and quite able to help themselves, but the mother-bird did not seem to think so, for she flew to a meadow near by, where grasshoppers were abundant, and served each of her babies in turn. She was very methodical in her way of doing things, for she began at one end of the row and gave each its insect in order, repeating until each had been served four times.

Quite in contrast to the table manners of the Robin are those of the Flickers, who first eat the food themselves, and then, thrusting their beaks into the throats of the nestlings, empty the contents of their crops, in which it has been partly digested. Our Pigeons have very much the same habit, except that in this case the nestling puts his beak into that of the parent and feeds on the copious secretion of the crop, along with the grain that was eaten and softened here.

The Swallows are quite at home on the wing, and when the nestlings have left the nest and can fly about

they are still fed for a time by the parent, who puts the insect morsel into the beak of the young while both are in the air.

The birds which, in the adult state, feed upon seeds, need often to change the diet for their young, and provide them with more easily digested food, so that for a time the seed-eaters become insect- or worm-eaters.

If we were to cross the ocean, we could find some very singular ways in which lunch is served to the nestlings. The male Hornbills, for example, carry food to both mother and young, who have been shut in the hollow of a tree by means of mud, with only a small opening left through which they are fed. The diet of fruit eaten by the male bird is ejected from his stomach, lining and all, into the hungry mouths at home.

WINGS AND TAIL.

A bird that must fly a great deal needs wings which are properly cut to make swift and easy travel in the air possible. (See cut No. 2.) Each part of the bird that helps it get on in the world will show by its make-up what it is best fitted to do.



The wings of flying animals move rapidly downward and upward in the air, supporting the body by the reaction of the air under their rapid strokes and at the same time pushing it forward. The wings of birds are not all of the same size, even though their bodies have about the same weight, because their habits may be quite different. The Heron has a comparatively light body and a very large wing surface. The Quail has a heavy body and a small wing surface. (See cut No. 1.)



The flight of the Heron and Quail differ quite as much as their wings. The Heron does not move the wing so rapidly, and flies more slowly and gracefully than the Quail. The Quail is a quick, rapid flyer for short distances, and starts off with great speed.

The Ostrich does not use its wings for flight, but merely to assist it in running. The Penguin, a bird that lives in the Southern seas, uses its wings as paddles for swimming under the water, the feathers on its wing being more like scales than ordinary feathers, and not at all fitted for flight in air.

The tail, too, which often takes an active part in a

bird's life, is fashioned according to the nature of its work. It has many different forms, depending upon the length of the different feathers composing it, of which in most birds there are twelve. When they are all of the same length, it is even or square. When they shorten gradually from the middle to the outside, rounded. When the outer ones are longer than the middle ones, forked. When the central pair is longest, pointed.

The Downy Woodpecker braces himself against the tree, using his tail with its sharp-pointed feathers as a prop. Ever active, he peeps into every likely crevice and loose piece of bark for a tender morsel. Useful as he is to the farmer in removing injurious insects and their eggs, he is too often under-valued and blamed for injuring the trees and fruit with his chisel-like beak. On the contrary, it is shown by the Department of Agriculture that of one hundred and forty stomachs examined, only three contained fruit,—apple in two, strawberries in one. Eleven taken in our State in winter showed that ten per cent. of his food was grasshopper eggs.

The little brown Chimney Swift with its spine-tipped tail can with ease rest on the inside of a chimney or hollow tree, where the tail again acts as a prop.

The "Dipper," or Pied-billed Grebe, has scarcely a tail at all; so much of its time is spent in and about the water that it does not need one. The wings, too, are short, making the body compact and of the shape of a double cone, admirably fitting it for diving.

The long tail serves well to balance and guide the birds on the twig and in the air. No matter how much the branch may toss and swing, the tail moves now up, now down, helping to keep the body erect. Whether or not it further serves the songster as a baton or means of expression, it is very significantly jerked about, as everyone has observed in the Catbird and Brown Thrasher.

HISTORY OF THE BIRDS OF KANSAS.

The following chapter is compiled from that great work, "History of the Birds of Kansas," by Col. N. S. Goss.

The publishers have made it possible in this number of the Twentieth Century Classics to give to the teachers and bird students of Kansas a history of fifty-one of our commoner birds, representing the different orders.

Colonel Goss gave many years of his life to the study of the habits of birds, not only in Kansas, but in various parts of North America. He has accurately and in a charming manner brought their life histories before us, and it is with the hope of giving a portion of his monumental work a wider circulation among all lovers of our birds that this compilation is made. It is also with the thought of offering some slight assistance in preparation for the study of these types so happily presented by him that the preceding brief introductory chapters have been written.

I.—BLUEBIRD.

Sialia sialis (LINN.).

An abundant resident in the eastern part of the State; common to the middle; retiring in winter to the thickets in the deep ravines and along the streams; a rare summer

resident in the western portion of the State. Begin laying the last of April. .

HABITAT. Eastern United States; north to Nova Scotia, Ontario and Manitoba; west to the base of the Rocky Mountains; breeding throughout their range; wintering from the Middle States southward to Cuba.

Iris brown; bill, legs, feet and claws blackish.

The habits of this well-known species are so familiar to all that no description is needed. I cannot, however, refrain from presenting the following, written by Wilson Flagg, in so happy and pleasing a style:

“Not one of our songsters is so intimately associated with the early spring as the Bluebird. Upon his arrival from his winter residence, he never fails to make known his presence by a few melodious notes uttered from some roof or fence in the field or garden. On the earliest morning in April, when we first open our windows to welcome the soft vernal gales, they bear on their wings the sweet strains of the Bluebird. These few notes are associated with all the happy scenes and incidents that attend the opening of the year.

“The Bluebird is said to bear a strong resemblance to the English Robin-Redbreast, similar in form and style, having a red breast and short tail feathers, with only this manifest difference: that one is olive colored above where the other is blue. But the Bluebird does not equal the Redbreast as a songster. His notes are few and not greatly varied, though sweetly and plaintively modulated, and never loud. On account of their want of variety, they do not enchain the listener; but they constitute an important part of the melody of morn.

“ The value of the inferior singers in making up a general chorus is not sufficiently appreciated. In musical composition, as in an anthem or oratorio, though there is a leading part, which is usually the air, that gives character to the whole, yet this leading part would often be a very indifferent piece of melody if performed without its accompaniments; and these alone would seem still more trifling and unimportant. Yet, if the composition be the work of a master, these brief strains and snatches, though apparently insignificant, are intimately connected with the harmony of the piece, and could not be omitted without a serious disparagement of the grand effect. The inferior singing birds, bearing a similar relation to the whole choir, are indispensable as aids in giving additional effect to the note of the chief singers.

“ Though the Robin is the principal musician in the general anthem of morn, his notes would become tiresome if heard without accompaniments. Nature has so arranged the harmony of this chorus, that one part shall assist another; and so exquisitely has she combined all the different voices, that the silence of any one cannot fail to be immediately perceived. The low, mellow warble of the Bluebird seems an echo to the louder voice of the Robin; and the incessant trilling or running accompaniment of the Hairbird, the twittering of the Swallow, and the loud, melodious piping of the Oriole, frequent and short, are sounded like the different parts in a band of instruments, and each performer seems to time his part as if by some rule of harmony. Any discordant sound that may occur in the performance never fails to disturb the equanimity of the singers, and some minutes will elapse before they re-

sume their song. It would be difficult to draw a correct comparison between the birds and the various instruments they represent. But if the Robin was described as the clarionet, the Bluebird might be considered the flageolet, frequently, but not incessantly, interspersing a few mellow strains. The Hairbird would be the octave flute, constantly trilling on a high key, and the Golden Robin the bugle, often repeating his loud and brief strain. The analogy, if carried farther, might lose force and correctness.

“All the notes of the Bluebird—his call notes—his notes of complaint, his chirp, and his song—are equally plaintive and closely resemble one another. I am not aware that this bird utters a harsh note. His voice, which is one of the earliest to be heard in the spring, is associated with the early flowers and with all pleasant vernal influences. When he first arrives he perches upon the roof of a barn or upon some leafless tree, and delivers his few and frequent notes with evident fervor, as if conscious of the pleasures that await him. These mellow notes are all the sounds he makes for several weeks, seldom chirping or scolding like other birds. His song is discontinued at midsummer, but his plaintive call, consisting of a single note pensively modulated, continues every day until he leaves our fields. This sound is one of the melodies of summer’s decline, and reminds us, like the note of the green nocturnal tree-hopper, of the ripened harvest, the fall of the leaf, and of all the joyous festivals and melancholy reminiscences of autumn.

“The Bluebird builds his nest in hollow trees and posts, and may be encouraged to breed around our dwellings by supplying boxes for his accommodation. In whatever

vicinity we reside, whether in a recent clearing or in the heart of a village, if we set up a bird house in May, it will certainly be occupied by a Bluebird, unless previously taken by a Wren or a Martin. But there is commonly so great a demand for such accommodations, that it is not unusual to see two or three different species contending for one box."

Their nests are loosely but rather smoothly constructed of fine straws, grasses and occasionally leaves, hair and feathers. Eggs, usually four or five, .83x.63; light greenish blue; in form, oval. Pure white sets have occasionally been taken.

II.—AMERICAN ROBIN.

Merula migratoria (LINN.).

Resident; abundant in the eastern part of the State in summer, and along the streams in winter, where the hackberries are plenty; rare at other times; not common in the western portion of the State. Begin laying the last of April.

HABITAT. Northern and eastern North America (replaced in the western United States, east to the edge of the Great Plains, by *M. migratoria propinqua*); south into eastern Mexico; breeding from near the southern borders of the United States northward to the Arctic coast.

In a few specimens the females were fully as large as the males.

Iris brown; bill bright yellow, tipped with dusky (the bill of the female somewhat paler; in young birds the upper mandible, with the exception of the edges, dark brown); legs brown; feet dark brown; claws blackish.

These familiar birds of the orchard and garden brave the coldest weather, and their distribution in winter depends largely upon the food supply. In the winter of 1880, I found a few wintering on Brier Island, Nova Scotia. They sought shelter at night and during severe storms in the thick growths of spruce and other shrubby trees, and subsist upon the snails and minute forms of life that abounds in the kelp and other débris washed upon the shore. Their winter fare inland consists largely of cedar berries, hackberries, wild grapes, etc., and in the fall help themselves to our cultivated berries; but they more than repay the loss in the destruction of cut worms, canker worms and various forms of injurious insect life, which they diligently search for in the gardens, plowed fields and bare spots, in the early spring, ready to catch them as fast as they are warmed into life in their winter beds by the hot rays of the sun and venture to the surface. Then they are the first of the family to greet us with their song; not as varied and musical as the silvery songs of their cousins of the deep woods, but full of tender pathos, and awaken us to the fact that winter is over and summer at hand.

Their nests are built in the crotches of trees, saddled on to horizontal branches or placed in hedges, outbuildings—in fact, most anywhere off the ground. They are coarsely constructed of leaves, stems, twigs and grasses, fastened together and plastered inside with mud, and lined with fine stems and rootlets. Eggs three to five (usually four), 1.16x.80; greenish blue; in form, oval.

III.—CHICKADEE.

Parus atricapillus (LINN.).

Resident; abundant in the eastern part of the State; common to the middle portion; rare westward. Begin laying early in April.

HABITAT. Eastern North America; west to the edge of the Great Plains; south into the northern borders of the Indian Territory and southern Missouri, but, east of the Mississippi river, rarely south of latitude 40°. Resident throughout their range.

Iris dark brown; bill, feet and claws black; legs slate brown.

The natural home of these sprightly little birds is within the woodlands, but they often frequent orchards and gardens, and in severe winter weather, when the snow lies upon the branches of the trees and fills the crevices in the bark, they visit the dooryards to pick up the scattered crumbs, and if a piece of fresh meat is hung up in a tree or upon the side of an outbuilding, they will come daily to pick off frozen bits, until the weather moderates and melts the snow and ice that covered the eggs, larva, etc., upon which they are accustomed to feed. The birds are very social and move about in small flocks, a happy group chatting away, and “merrily singing their Chick-a-dee-dee.”

In the early mating season they have a loud, clear, whistling song, “Péto,” uttered at short intervals, and various quaint, chatty call notes. Graceful little fellows! that fly from tree to tree and actively search the branches, often swinging feet uppermost from the ends of slender

twigs, to pick out a seed, an insect from a leaf, or larva hidden in a bud. Pretty birds! that with their familiar, unsuspicious ways win our love; and in addition to this should receive a warm welcome for the good they do in ridding the forest and fruit trees of their many pests. Mr. Samuels, in "Birds of New England," says:

"In some localities the Titmouse is regarded as injurious, from the fact that it is often seen among the branches and leaves of the fruit trees and shrubs, pecking off and destroying the buds. It does not do this to the bud for food, but really for the grub contained in it. If these buds be examined after the Chickadee has thrown them away, the burrow of a grub or caterpillar will be found in the very heart of them. The bird is able to discover the presence of these vermin much more readily than man could, and it is thus able to assail them at a period of their existence when they are doing the most harm. But it is not the insect and the larva alone that he destroys. His microscopic eyes enable him to discover their eggs deposited on and in the crevices of the bark and in the buds, and in an instant he can destroy the whole future brood. The eggs of the moth of the destructive leaf-rolling caterpillar, those of the canker worm, the apple tree moth, and others of these well-known plagues, are greedily eaten up by it; and this is in the inclement winter, when most of our other birds have abandoned us for a more genial climate.

"In the summer time, the Chickadee's labors are more easily noticed; and as he raises a large brood of young, the female laying six or eight eggs at a litter, he is very busy through the whole day in capturing vast quantities

of caterpillars, flies and grubs. It has been calculated that a single pair of these birds destroy, on the average, not less than five hundred of these pests daily; a labor which could hardly be surpassed by a man, even if he gave his whole time to the task.

“Moreover, the man could not be successful at so small a cost, for, setting aside the value of his time and the amount of a laborer's daily wages, he could not reach the denser and loftier twigs, on which the caterpillars revel and which the Titmouse can traverse with perfect ease. No man can investigate a tree, and clear it of the insect hosts that constantly beleaguer it, without doing some damage to the buds and young leaves by his rough handling; whereas the Chickadee trips along the branches, peeps under every leaf, swings himself round upon his perch, spies out every insect, and secures it with a peck so rapid that it is hardly perceptible.”

“In some observations made on the habits of this and some other birds in Paris, it was found that the Titmouse destroys, at the lowest computation, over two hundred thousand eggs alone, of noxious insects, in the course of a year. That one small bird is thus able to accomplish so much good, in destroying these myriads of vermin, is an appeal to the good sense of the farmer for the protection of the whole class that should not be slighted.”

Their nests are placed near the ground, in holes made by themselves in decaying trees and stumps. They are composed of bits of moss, interwoven with fur and fine hair, and occasionally a few downy feathers. Eggs four to eight, .60x.47; white, speckled with reddish brown and lilac stains, generally the thickest around the larger end; in form, oval.

IV.—BROWN CREEPER.

Certhia familiaris americana (BONAP.).

Winter sojourner; common in the eastern portion of the State; rare westward. Leave the last of March to the first of April; begin to return in October.

HABITAT. Temperate eastern North America; west to the Great Plains (represented westward in the Rocky Mountain region by *C. familiaris montana*, and on the Pacific side by *C. familiaris occidentalis*); breeds from the northern United States northward; winters southward into the Gulf States.

Iris brown; bill dark brown, with base of under flesh color; legs and feet reddish brown; claws a shade darker.

The natural haunts of these peculiar birds are within the deep woods, but during migration are occasionally met with in our shade trees, orchards, scattering trees upon the prairies and that fringe the streams far out upon the plains. They are not sociable birds, so far as relates to their own kin, and lead a rather isolated, solitary life, except during the mated season, and then are only in pairs; but they are often found associating with the Nuthatches and Titmice; not, I think, from choice, but because the insect life is the most abundant. In their search for the eggs and larva and small forms of life hidden in the interstices of the bark, they climb the trees in a jerky manner, and usually spiral-like; sometimes but a short distance, at others nearly to the top, flying in either case and alighting at the foot of another tree, and creep upwards as before, repeating the performance, as they cannot creep downward like the Nuthatches. Their feet and

sharp claws are admirably adapted to climbing, and their stiff tails keep them erect as they ascend.

They are not wild, but rather shy, and manage to keep on the opposite side of the tree from the intruder. Their presence would seldom be noticed were it not for their oft-repeated, feeble, but sharp, creaky "Cree-cree-cree-cree," and occasional soft, lisping "Chip."

I am unacquainted with their breeding habits, and therefore take pleasure in quoting the following description of their song and nests, from Mr. Wm. Brewster's observations during the months of May and June, in the timbered regions of Lake Umbagog, in western Maine:

. . . "He is a frequent, but scarcely a persistent singer, and his voice, though one of the sweetest that ever rises in the depths of the northern forests, is never a very conspicuous sound in the woodlands where he makes his home. This is due to the fact that his song is short, and by no means powerful, but its tones are so exquisitely pure and tender, that I have never heard it without a desire to linger in the vicinity until it has been many times repeated. It consists of a bar of four notes—the first of moderate pitch, the second lower and less emphatic, the third rising again, and the last abruptly falling, but dying away in an indescribably plaintive cadence, like the soft sigh of the wind among the pine boughs. I can compare it to no other bird voice that I have ever heard. In the pitch and succession of the notes it somewhat resembles the song of the Carolina Titmouse (*Parus carolinensis*), but the tone is infinitely purer and sweeter. Like the wonderful melody of the Winter Wren, it is in perfect keeping with the mysterious gloom of the woods; a wild, clear voice,

that one feels would lose its greatest charm if exposed to cheerful light and commonplace surroundings. . . .

"Among the other voices, I shortly detected the sweet, wild song of the Brown Creeper, and, looking more carefully, spied a pair of these industrious little gleaners winding their way up the trunk of a neighboring tree. Although I watched them closely, the female soon after, in some way, eluded my sight, and mysteriously disappeared, but the male remained in the immediate vicinity, singing at frequent intervals. Being convinced that they must have a nest somewhere near, I instituted a careful search among the dead trees that stood around, and at length detected a scale of loose bark, within which was crammed a suspicious-looking mass of twigs and other rubbish. A vigorous rapping upon the base of the trunk producing no effect, I climbed to the spot, and was about to tear off the bark when the frightened Creeper darted out within a few inches of my face, and the next moment I looked in upon the eggs.

"The tree selected was a tall dead fir, that stood in the shallow water just outside the edge of the living forest, but surrounded by numbers of its equally unfortunate companions. Originally killed by inundation, its branches had long ago yielded to the fury of the winter storms, and the various destroying agents of time had stripped off the greater part of the bark, until only a few persistent scales remained to chequer the otherwise smooth, mast-like stem. One of these, in process of detachment, had started away from the trunk below, while its upper edges still retained a comparatively firm hold, and within the space thus formed the cunning little architect had constructed

her nest. The whole width of the opening had first been filled with a mass of tough but slender twigs (many of them at least six inches in length), and upon this foundation the nest proper had been constructed. It was mainly composed of the fine inner bark of various trees, with an admixture of a little *Usnea* moss and a number of spider's cocoons. The whole mass was firmly but rather loosely put together, the different particles retaining their proper position more from the adhesion of their rough surfaces than by reason of any special arrangement or interweaving. The general shape of the structure necessarily conformed nearly with that of the space within which it was placed, but a remarkable feature was presented by the disposition of the lateral extremities. These were carried upward to a height of several inches above the middle of the nest, ending in long, narrow points or horns, which gave to the whole somewhat the shape of a well-filled crescent. In the center of the lowest part of the sag thus formed was the depression for the reception of the eggs—an exceedingly neat, cup-shaped hollow, bordered by strips of soft, flesh-colored bark and lined with feathers from Ducks and other wild birds. The whole was fastened to the concave inner surface of the bark scale rather than to the tree itself, so that when the former was detached it readily came off with it. I afterwards found two old nests, which were perhaps originally built by this same pair of birds, as they were placed on a tree that stood close at hand. They were under a single, enormous piece of bark, but at its opposite lateral extremities. One of them, a nearly shapeless mass of rubbish, was scarcely recognizable, but the other still retained its original shape and finish, and

contained an unhatched egg, the contents of which had long since dried away. Probably they represented the homes successively occupied during the two preceding seasons, and it is hence likely that this species, like so many others, returns year after year to breed in nearly the same spot."

Eggs five to nine, .60x.48; white to creamy white, speckled and spotted with reddish brown, chiefly about the larger end; in form, oval.

V.—CATBIRD.

Galeoscoptes carolinensis (LINN.).

Summer resident; abundant in the eastern part of the State; not uncommon in the western portion. Begin laying about the middle of May; the bulk leave about the last of September; a few remaining late in November.

HABITAT. Eastern North America; north in the interior to about latitude 54° ; west to the western base of the Rocky Mountains; breeding throughout its United States range and northward; wintering from the Indian Territory and the Carolinas southward, through eastern Mexico, to southern Central America.

Iris dark brown; bill, legs, feet and claws black; legs and feet sometimes brownish black.

Miss Florence A. Merriam, in "Birds through an Opera Glass," describes the habits and actions of this eccentric and well-known bird, in so life-like and happy a manner, that I take pleasure in copying the same:

"High trees have an unsocial aspect, and so, as Lowell says, 'The Catbird croons in the lilac bush,' in the alders, in a prickly ash copse, a barberry bush, or by the side of the garden. In Northampton, one of his favorite haunts

is an old orchard, that slopes down to the edge of Mill River. Here, he is welcomed every year by his college girl friends; and in the open seclusion of an apple tree, proceeds to build his nest, and raise his little family, singing through it all with keen enjoyment of the warm sunshine and its own company.

“To the trio the Catbird is at once the most interesting and most exasperating of birds. Like some people, he seems to give up his time to the pleasure of hearing himself talk. A first cousin of the Mockingbird—whom he resembles in person much more than in voice—perhaps the relationship accounts for his overweening confidence in his vocal powers. As a matter of fact his jerky utterance is so harsh that it has been aptly termed asthmatic.

“The Catbird is unmistakably a Bohemian. He is exquisitely formed, and has a beautiful slate gray coat, set off by his black head and tail. By nature he is peculiarly graceful, and, when he chooses, can pass for the most polished of the Philistine aristocracy. But he cares nothing for all this. With lazy self-indulgence, he sits by the hour with relaxed muscles, and listless, drooping wings and tail. If he were a man, you feel confident that he would sit in shirt sleeves at home and go on the street without a collar.

“And his occupation? His cousin is an artist, but he—is he a wag as well as a caricaturist, or is he in sober earnest when he tries to mimic the inimitable Wilson’s Thrush? If a wag, he is a success, for he deceives the unguarded into believing him a Robin, a cat, and ‘a bird new to science.’ How he must chuckle over the enthusiasm which hails his various notes, and the bewilderment and chagrin that come to the diligent observer who finally catches a glimpse of the garrulous mimic!

"The Catbird builds his nest as he does everything else. The loose mass of coarse twigs, patched up with leaves, pieces of newspaper, or anything he happens to fancy, looks as if it would hardly bear his weight. He lines it, however, with fine bits of brown and black roots, and when the beautiful dark bluish green eggs are laid in it, you feel sure that such an artist-looking bird must enjoy the contrasting colors."

Eggs three to five, usually four, .94x.69; in form, oval.

VI.—WESTERN HOUSE WREN.

Troglodytes aedon aztecus (BAIRD.).

Summer resident; common. Arrive in April; begin laying about the middle of May. Leave in September.

HABITAT. Western United States, except Pacific coast; east to Illinois; south into Mexico to Vera Cruz; breeds throughout its United States range, and probably southward.

This variety of *T. aedon* was entered in my "Catalogues of the Birds of Kansas" as *T. aedon parkmanii*, as at that time its habitat was supposed to embrace the western United States east to or near the Mississippi river. Since then, the A. O. U. Committee, in reviewing the material before them, have decided that the birds on the Pacific coast differ enough in color, etc., to form another subspecies, and, as the name *T. parkmanii* was given by Audubon to a bird procured on the Columbia River, the new form properly retains the name, and our bird becomes *T. aedon aztecus*.

This subspecies differs from the above description, in

being somewhat paler and grayer, with less rufous on rump and tail, more noticeable upon the plains (as would naturally be expected), but it shades so gradually back into the color of the eastern bird the dividing line cannot well be determined.

With all deference to the committee, it is my opinion that the differences are too inconstant to warrant the separation of either form, and that *T. aedon* should be the recognized bird from coast to coast.

Iris brown; bill—upper dusky, under pale; legs and feet brown; claws dark brown.

These interesting, familiar little birds are very common, or rather locally so, throughout their range—abundant in some localities, and, perhaps in the near vicinity, rare, or not to be found. They frequent the open, shrubby hills and mountain sides, and scanty growths bordering the streams upon the plains and unsettled portions of the country; but, within the settlements, prefer for their haunts the orchards, gardens or shrubbery about the dwelling houses and outbuildings. Pugnacious little fellows, that boldly attack the larger birds, and, by scolding and harassing, drive the house-cat and other prowling enemies away; and, regardless of property rights, take possession of the Bluebird and Martin houses, and are often able to retain possession.

They are industrious insect hunters, searching in the bushes, vines, woodpile, etc., and creeping and peeping into every nook and cranny for the same. They move about with tail erect, in a quick, nervous manner.

Their song, heard almost incessantly during the early breeding season, is poured forth from a perch, in a vigor-

ous manner, with swollen throat, head thrown back, depressed tail and tremulous wings, a picture of happiness and content. A sprightly, pleasing, warbling, flippant and voluble song, but, to my ear, not remarkably musical. Outside from their song and interesting ways, they are valuable in the destruction of injurious insect life, and are in no way harmful; and, for these reasons, suitable boxes are or should be placed in the porches, and nailed to the outbuildings, for their reception.

Their nests are placed in holes in trees, logs and stumps, and about dwelling houses, in boxes, etc., entering out-houses through crevices and knotholes—in fact, most anywhere (I once found a nest in the skull of a buffalo); loosely constructed of sticks, weeds, etc., filling the cavities, leaving a small opening for entrance; within the rubbish they construct an inner nest, composed of finer material, lining the same with feathers, fur, and most any soft, warm substance. Eggs seven to nine, .64x.49; ground color white to pinkish white, but so thickly dotted with specks of reddish brown and a few purple markings that the white is concealed; in form, oval.

VII.—BROWN THRASHER.

Harporhynchus rufus (LINN.).

Summer resident; abundant in the eastern part of the State; not uncommon in the western portion. Arrive the last of March to middle of April; begin laying early in May. The bulk leave in September and October, a few remaining until late in the fall.

HABITAT. Eastern United States; north to southern Maine, Ontario and Manitoba; west to the Rocky Moun-

tains; south through the Gulf States (replaced in western Texas by *H. longirostris*). Breeds throughout its range. Winters from the Gulf coast north into the Indian Territory and eastward, to about latitude 37°.

Iris yellow; bill black, with under whitish at base; legs and feet grayish brown; tarsi in front reddish brown; claws light brown.

These large, handsome songsters prefer for their haunts the underbrush bordering the woodlands, tangled thickets of bushes and briars, and the hedges upon the prairies, and, while not shy or timid birds, as a rule select their homes rather remote from our dwellings. The male arrives in advance, and, as soon as he has selected a breeding place, mounts the topmost branches of the trees and pours forth his loudest song at short intervals, fearing if he remains silent the hen bird may pass him by unnoticed. Upon her arrival, he sings from the lower branches and bushes beneath, and devotes a large share of his time to love making, driving away intruders, and in assisting in nest building. As soon as the nest is completed and his mate begins to lay, he again sings from the treetops to cheer her, taking his turn, however, in sitting upon the eggs; but as soon as the little ones are hatched his song ceases almost entirely, and he probably devotes his time to watching over and assisting in caring for the wants of the young.

They feed and rear their young upon earth worms, spiders, grasshoppers, beetles, wasps, etc., and berries in their season. They are quite rasorial in their habits, and in their search for food often hop over the ground and scratch among the leaves. They have a peculiar habit

of beating the insects upon the ground or perch, knocking and thrashing them about until dead (and in removing the wings and legs of the larger ones before swallowing them). It is for this reason they are called Thrashers. They flit and hop about in the bushes, with expanded tails, in a graceful, easy manner, but, on account of the shortness of their rounded wings, their flights are low and heavy. The old birds do not take kindly to confinement, but the young when reared from the nest become very tame, and when well cared for sing with full power and melody their charming wild-wood song, which, for length, compass, variety and musical flow, ranks next to the song of the Mockingbird. Their call and alarm notes vary: a "Chup," hissing sounds, at times harsh, scolding notes.

Their nests are placed in low bushes, vines, hedges, and occasionally upon the ground; a coarse, bulky structure, the outside usually composed of sticks, rootlets and stems of weeds; within this an inner nest of leaves and stripings from plants, lined with fine rootlets and horse hair. Eggs three to five (usually four), 1.06x.80; creamy white to pale greenish, thickly dotted with yellowish to reddish brown, confluent around the larger end; in form, oval to rounded oval.

VIII.—OVEN-BIRD.

Seiurus aurocapillus (LINN.).

Summer resident; very common in the eastern part of the State. Arrive the middle to last of April; begin laying about the middle of May; leave early in September.

HABITAT. Eastern North America; north to Hudson's Bay Territory and Alaska; west to the base of the Rocky Mountains; breeding from southern Kansas and Virginia

(probably a little south) north to within the Arctic circle; wintering in southern Florida, the Bahamas, West Indies and Mexico to southern Central America.

Iris dark brown; bill—upper black, under pale flesh color, with end dusky; legs flesh color; feet and claws light brown.

The following interesting description of the habits of this bird is taken from "Birds of Illinois," by Ridgway:

"The Golden-crowned Thrush, or Oven-bird, is one of the most generally distributed and numerous birds of eastern North America. It is almost certain to be found in any piece of woodland, if not too wet, and its frequently repeated song, which is not musical, or otherwise particularly attractive, but very sharp, clear, and emphatic, is often, particularly during noonday in midsummer, the only bird note to be heard. It lives much upon the ground, where it may be seen walking gracefully over the dead leaves, or upon an old log, making occasional halts, during which its body is tilted daintily up and down, much in the manner of the Water-Thrushes (*S. motacilla* and *noveboracensis*), but more like the Kentucky Warbler, often to be seen in the same localities. Its ordinary note is a rather faint, but sharp 'Chip,' prolonged into a chatter, when one is chased by another. The usual song is very clear and penetrating, but not musical, and is well expressed by John Burroughs, in 'Wake Robin,' as sounding like the words, 'Teacher, *teacher*; teacher, *teacher*, TEACHER!'—the accent on the first syllable, and each word uttered with increased force and shrillness. But, as Mr. Burroughs truly says, 'He has far rarer song which he reserves for some nymph whom he meets in the air. Mounting by easy

flights to the top of the tallest tree, he launches into the air with a sort of suspended, hovering flight, and bursts into a perfect ecstasy of song—clear, ringing, copious, rivaling the Goldfinch's in vivacity, and the Linnet's in melody. This strain is one of the rarest bits of bird melody to be heard. Over the woods, hid from view, the ecstatic singer warbles his finest strains. In the song, you instantly detect his relationship to the Water Wagtail (*Seiurus noreboracensis*) — erroneously called Water-Thrush — whose song is likewise a sudden burst, full and ringing, and with a tone of youthful joyousness in it, as if the bird had just had some unexpected good fortune. For nearly two years, this strain of the pretty warbler was little more than a disembodied voice to me, and I was puzzled by it as Thoreau was by his mysterious Night Warbler, which, by the way, I suspect was no new bird at all, but one he was otherwise familiar with. The little bird himself seems disposed to keep the matter secret, and improves every opportunity to repeat before you his shrill, accelerating lay, as if it were quite enough, and all he laid claim to. Still, I trust I am betraying no confidence in making the matter public here. I think this is preëminently his love song, as I hear it oftenest about the mating season. I have caught half-suppressed bursts of it from two males, chasing each other with fearful speed through the forest.' ”

Reader, if you wish to hear this love song in its fullest power, visit the deep woods in the early summer, as the shades of night deepen, and most of the diurnal birds have retired, for it is then that its lively, resonant voice falls upon the ear unbroken, save by the silvery flute-like

song of the Wood Thrush; and if your heart does not thrill with pleasure, it is dead to harmonious sounds.

Their nests are placed on the ground, generally a depression among the leaves, and hidden under a low bush, log, or overhanging roots; when in an open space, roofed over; a dome-like structure, made of leaves, strippings from plants, and grasses, with entrance on the side. Eggs three to six—rarely six, usually four, .80x.60; white, or creamy white, quite glossy, spotted as a rule rather sparingly over the entire surface, thickest and confluent around the larger end, with pale reddish brown, lilac and umber; in form, rounded oval.

IX.—YELLOW-THROATED VIREO.

Vireo flavifrons (VIEILL.).

Summer resident; quite common in the eastern part of the State. Arrive the last of April to first of May; begin laying about the 20th of May; the bulk leave early in September; a few occasionally linger into October.

HABITAT. Eastern United States, occasionally crossing the line into the British possessions; south in winter through eastern Mexico, to Costa Rica. I found them quite common in Guatemala. Breed throughout their United States range.

Iris brown; bill—end dusky, rest bluish; legs, feet and claws lead color.

These handsome birds frequent the woods, and seem to prefer the timbered lands along the streams; at least, this is the case in their western range. In the Eastern States they are said to be quite a familiar bird, and to inhabit alike the orchards and shade trees; and, as they

are not wild or timid, will no doubt soon become accustomed to the presence of man, and readily make their homes about our prairie dwellings, as soon as the trees and shrubbery form inviting haunts; at any rate, they are much more common here than in former years.

In flight they are less steady and not so swift as the Red-eyed. Their food habits are the same, but they look more for the supply among the foliage in the treetops. Their song is not so constant, and is delivered in a slower and more plaintive strain, but in a very clear and musical manner. Among the Vireos they rank next to the Warbling in song.

In regard to their nesting habits I will say, that on the 9th of May, 1877, I found, in the timber near Neosho Falls, Kansas, a nest of this bird (a pendent one, as all Vireos' nests are) attached to branches of a very small horizontal limb of a large hickory tree, about twenty feet from the ground, and ten feet below the limbs that formed the top of the tree. In the forks of the tree the Cooper's Hawks were nesting, and I discovered the Vireo and its nest in watching the Hawks—or rather the man I had hired to climb the tree to the Hawks' nest. The little bird at first flew off, but on his near approach returned and suffered him to bend the limb toward the tree and cover her with his hand on the nest. The twig was quickly broken, and the bird and nest lowered by a line in a small covered basket, taken to collect the eggs of the Hawk. Such manifestations of courage and love, so rare and exceptional, touched me to the heart, and it was hard to make up my mind to rob and kill the bird and her mate, scolding in the treetop. I can only offer in extenua-

tion that they were the first I had ever met with in the State, and the strong desire to have them in my collection. The nest was made of and fastened to the limb with silk-like threads and bits of cotton from plants, fastened together by saliva, and partly covered or dotted over with lichen, and lined with small stems of weeds and grass. The beautiful nest was in plain sight, there being nothing near to hide it from view. It contained three eggs and also one of the Cowbird (*Molothus ater*). One of the eggs was broken by the bird in her struggle to escape from the collector's grasp while in the nest. The color of the eggs was pure white, with a few scattering small spots of reddish brown toward the larger end. They each measure .79x.58. Four taken from another nest (a full set) measure: .78x.57, .80x.58, .79x.58, .78x.57.

I have since noticed these birds in the woodlands on several occasions, and on the 18th of May, 1883, while strolling along the south bank of the Kansas River, near Topeka, in the timber skirting the stream, I had the pleasure to find a pair of them building a nest in a honey locust, about sixteen feet from the ground, and eight feet from the body of the tree. The nest was fastened to the forks of a small horizontal branch. The frame of the nest appeared to be completed. The birds were busy at work, the female lining the nest with small, hair-like stems, the male covering the outside with soft, lint-like fibrous stripings from plants (these closely resembling the limb and its surroundings), and dotting it over with lichen. Happy in the thought that he was not only beautifying the home of his lady bird, but protecting her from view by his artistic skill (notwithstanding the fact that she had se-

lected an open and exposed situation), he could not refrain from expressing his joy, at intervals during the work, in snatches of his sweetest notes. The female, more watchful, sighted me, and gave notice of the intrusion. Quick as thought the birds were away. The male, alighting near the top of an adjoining tree, at once poured forth his song in loudest notes, no doubt thinking that by attracting my attention to him, I would lose sight of the nest. Knowing it was now too late for concealment, and that any attempt to hide away would only increase their suspicions, and stop or delay the work, I carelessly walked nearer, in order to have a better view, and lay down on my back in an open space. In a short time the female returned, hopped about the tree, inspected me closely from the lower limbs, and then flew away and returned several times, before bringing material, or venturing to approach the nest. But the moment she did so, the song of the male ceased, and the work of building was actively resumed. As the female stood upon the top of the nest, with head down and inside, I could not see the manner of arranging the lining; but as she kept walking around upon the rim, I could, in imagination, see her plaiting and weaving in and out the hair-like stems. It was very easy and interesting, however, to see and note the actions of the male, as he deftly worked the material into the framework, running the longer, fibrous, thread-like strips through, and then quickly springing upon the top, and fastening them on the inside. Then he would rearrange the outside, stopping a moment to inspect the work, and then off in search of more material, occasionally warbling a few notes on the way; but he was silent at the nest, while I remained so near. At the

rate their work was progressing, I think the nest would have been completed during the day. I do not know that it is the usual custom for the female to confine her labors to the plain and necessary work, and the male to the decorative and ornamental parts, but it was so in this case. It may be that the time of laying was near at hand, and that the female felt the pressing necessity for the completion of the interior; for, in such cases, I have seen nests of birds enlarged and completed by the males, while the females were sitting upon their treasures.

Eggs three to five, usually four; in form, oval.

X.—WHITE-RUMPED SHRIKE.

Lanius ludovicianus excubitorides (SWAINS.).

Summer resident; occasionally lingers into winter. Arrive early in the spring; begin laying about the first of May.

HABITAT. The central regions of North America, north to the Saskatchewan, southwesterly to Lower California, and over the table lands of Mexico; occasionally stragglers in the States far eastward.

Iris brown; bill, legs, feet and claws black.

This pale race of the Loggerhead Shrike is similar to it in habits and actions, and, like it, occasionally kills small birds and mice, but feeds almost wholly upon grasshoppers, beetles and crickets. It also has the habit of the family of impaling its victims on thorns, etc., but less frequently than the Northern Shrike. Its ordinary voice is harsh and creaking. It has, however, considerable talent in the way of mimicry, especially in uttering the notes of birds in distress; and, during the early mating season,

I have occasionally heard it sing from a perch a rather pleasing, musical song, interrupted at times with its harsh, grating notes.

Its nest is placed in thorn trees, hedges, briars, etc.; a rough, bulky structure, composed of small sticks and stems, with bits of leaves, wool, feathers and other soft, fragmentary substances sparingly woven in, and lined with fine stemlets of weeds and grass, and sometimes with hairs. Eggs four to six, 1.02x.73; dull grayish to yellowish white, spotted with varying shades of brown and obscure lilac, more or less confluent at the larger end; in some cases thickly spotted and blotched over the entire surface, so as to nearly conceal the ground color; in form, oval. A set of five eggs, taken June 5th, 1878, at Pewaukee, Wisconsin, from a nest in a small thorn tree, are, in dimensions: 1.00x.72, 1.01x.75, 1.02x.75, 1.03x.73, 1.05x.73.

XI.—BARN SWALLOW.

Chelidon erythrogaster (Bodd.).

Summer resident; common. Arrive from about the 10th to the last of April; begin laying about the middle of May; leave the last of August to first of September.

HABITAT. North America in general; south in winter into South America; found breeding as far south as the City of Mexico, but breed chiefly north of the southern United States.

Iris dark brown; bill, legs, feet and claws black.

These handsome Swallows excel in easy and graceful movements, in the air, all others of the family, and they are, I think, the swiftest flyers among the birds. They are more evenly distributed during the breeding season than

the Cliff Swallows, as the mated pairs often nest alone, and never in very large communities. They are social birds, and, while mated, strongly attached to each other, the male often feeding his mate as she patiently and lovingly sits upon her treasures, and he also assists in rearing the young. Their song is but a succession of sharp, squeaky, warbling twitterings, at times quite animated and pleasing; their call note a simple twit.

Their nests are attached to the sides of rafters in barns and suitable places in outbuildings, under bridges, etc., and, in the unsettled portions of the country, under overhanging rocks and in the fissures or cavern-like cavities. A semi-cup-shaped structure, rather roughly constructed of layers of mud and grasses, and lined with the finer grasses and feathers. Eggs three to six (usually four), .77x.55; pure translucent white, spotted and blotched with purple and varying shades of dark reddish brown, and, occasionally, lilac stains, usually aggregating thickest about the larger end; in form, oval.

XII.—AMERICAN GOLDFINCH.

Spinus tristis (LINN.).

Resident; abundant in winter; quite common in summer. Begin laying late in June to middle of July. They nest late, in order that the seeds upon which they chiefly raise their young may form and begin to mature by the time the little ones are hatched.

HABITAT. Temperate North America generally.

Iris dark brown; bill, terminal half of ridge dusky, rest straw color; legs and feet light brown; claws a shade darker.

These hardy, gregarious, social birds are largely residents within their northern homes, moving southward as the deep snow covers their main supply of food, rather than from choice or habit, nesting from southern California, southern Kansas and Kentucky, northward; south, I think only a winter sojourner, except, perhaps, in mountainous districts.

Their gentle ways, bright colors, sweet song, and undulating, chirruping flight readily attract attention, and assure them, as a rule, a welcome, though they are not always in good standing with the gardener, who objects to their taking at the harvest a small share of the ripened seeds. For this, they more than repay by the destruction of the seeds of the many weeds and injurious plants, upon which they largely feed throughout the winter months. The thistle is a favorite, and they are also very fond of the seeds from the cones of the hemlock, etc., and of the button balls of the sycamore trees. They are easily tamed, and their low, warbling song, that at times swells up quite loudly, much like the Canary, makes them a favorite cage bird.

Their nests are placed in the branches of trees and bushes, generally on apple or small elm trees, from six to twelve feet from the ground. They are constructed of and firmly attached to the limbs on which they rest, with fine hemp-like strippings from plants and bits of cottony substances, and lined with hairs, and now and then a feather. Eggs four to six, .65x.50; pale bluish white; when fresh and unblown, with a rosy hue; in form, oval.

XIII.—SLATE-COLORED JUNCO.

Junco hyemalis (LINN.).

Winter sojourner; abundant. The bulk leave in March; begin to return about the middle of October.

HABITAT. Northern North America; south in winter throughout the eastern United States, and straggling westward to the Pacific coast. Breeds from Nova Scotia and Maine to Alaska.

Iris blackish brown; bill white, with a pinkish, sometimes bluish tinge, dark at tips; legs brown; feet dark brown; claws black.

These hardy little birds are at home in the winter storms. They frequent the edges of the woods and borders of fields and open lowlands. A rather timid bird, that only seeks the abode of man when the ground is covered with snow. Hunger then overcomes fear, and they become a familiar bird about the yards and stables, hopping nimbly about among the cattle and poultry, and eagerly picking up the crumbs and seeds scattered in the dooryards; returning to their haunts as the snow melts away, if not as wild, as timid as ever, darting into cover at the slightest disturbance, but quickly returning, as if forgetful of the scare. They associate together in small flocks, except during the mated season, but are of rather a quarrelsome nature, and not a real social, happy group. When at rest, they perch in the bushes and trees near the ground, rarely ever flying into the tall tree tops. Their usual chip call note sounds much like that of the Chipping Sparrow. In the early spring, as the warm weather awakens the passions of love, the males begin to think

of mating, and rattle off a rather low, pleasing song. They are not constant singers, their voices being seldom heard except in the morning and during the early breeding season.

Their nests are placed in a depression in the ground, under logs and in various sheltered situations. I found a nest in Nova Scotia, under an upturned root of a tree. They are also said to occasionally nest in low bushes. Their nests are made of dry grasses, strippings from plants, and hairs, sometimes lined with fine grasses, bits of moss, etc. Eggs usually four to five, .75x.58; whitish to bluish green, speckled and blotched chiefly about the larger end with dark reddish brown and lilac; in form, oval.

XIV.—FOX SPARROW.

Passerella iliaca (MERR.).

Winter sojourner; abundant in the eastern part of the State, rare in the western portion. Leave in March; return in October.

HABITAT. Eastern North America; west to the plains and Alaska; north to or near the Arctic regions; winters from the southern portion of the Middle States southward to the Gulf coast; breeds from the Gulf of St. Lawrence and Labrador to Alaska.

Iris brown; bill—upper dusky, with edges of the same and lower mandible straw color; legs and feet dark flesh color; claws brown.

This large, plump, handsome Sparrow inhabits the tangled thickets and sheltered ravines. It is largely terrestrial in its habits, and, like the Towhees, puts in most of its time scratching among the dead leaves for food.

A rather timid bird, that darts into the thickest growths at the least alarm, uttering, as it starts, a sharp chup note. It also has a soft, Sparrow-like chip, or call note, and occasionally utters a few low, soft, warbling notes; but its charming love song is only heard during the breeding season. It is rather short, but unsurpassed in melody by any of the family.

In the month of July, 1879, I found them breeding on Byron Isle, one of the Magdalen group, in the Gulf of St. Lawrence. It was too late in the season for their eggs, as their young birds were nearly full grown. From actions, I think the parent birds were preparing to rear another brood, as the males were singing almost constantly, from early morn till late at night; but their song, so rich and silvery in its tone, was ever welcomed, and never seemed tiresome, and I think they rank next to our Thrushes and Wrens as songsters.

Their nests are usually placed on the ground, in concealed places, occasionally in bushes. Mr. Nelson, in his "Report upon Natural Historical Collections in Alaska," gives the following minute description of a nest and its eggs:

"On June 5th, 1880, a pair was shot, in a thicket near St. Michael's, and the nest secured. The nest obtained is a very strong, compact structure, four and a half inches across by two and three-fourths high, having a central cavity one and three-fourths inches deep by two and three-fourths across. The outer part of the nest is made of a thin, compact layer of green moss, with a few dead leaves. Inside is a thin layer of dried grass, running circularly up the inside of the nest; this again is lined with

a handsomely cross-woven layer of wiry black moss fibers and chestnut club-moss stems; the whole being a very well made and handsome structure, in which were three eggs with a clayey greenish ground color; two of them are thickly and uniformly dotted with dull reddish brown; between the dots the ground color shows plainly in many places; the third egg is so densely dotted with reddish brown and chocolate that the ground color can hardly be traced, in a few places. This egg measures .90x.70; the other two, .89x.68 and .90x.68."

Eggs three to five; in form, oval.

XV.—MEADOWLARK.

Sturnella magna (LINN.).

Resident; abundant in the eastern and middle portion of the State; rare in the western. Begin laying early in May.

HABITAT. Eastern North America; north to Nova Scotia and Canada; west to the edge of the Great Plains. Breeds throughout its range.

Iris brown; bill reddish to olive brown, with basal half of under pale bluish; legs light bluish flesh color; feet, especially the joints, darker; claws brown.

These well-known, plump, pretty birds inhabit the prairies and open grass lands, where, during the summer months, they feed almost exclusively upon beetles, grasshoppers, etc., and in winter upon the fallen seeds and grains, often visiting the cattle yards; harmless, beautiful birds, in no sense injurious, and therefore general favorites. They are very hardy, wintering from the Middle States southward, and the earliest of our spring song-

sters. Mounted upon a fence post, bush or knoll, they repeat at intervals their whistling notes, not varied but pleasing, and expressive of tenderness and joy. Their flights are rather laborious, an alternate changing from a rapid vibration of the wings to sailing; terrestrial birds, that during the breeding season remain in pairs, but are afterwards usually met with in small flocks or family groups.

Their nests are placed on the ground, in a thick tuft of grass, composed of grasses, which are often interwoven so as to form a cover overhead. Eggs four to six, 1.10x.80; white, finely spotted with lilac and reddish brown; in form, oval.

XVI.—BOBOLINK.

Dolichonyx oryzivorus (LINN.).

Summer resident; very rare; during migration quite common. Arrive the last of April to middle of May; begin laying the last of May; return in September.

In the early part of June, 1867, I found a pair in Anderson county, and from actions was positive the birds had a nest near by, but was unable to find it, and I have in "The Goss Ornithological Collection" a male shot May 23d, 1877, near Neosho Falls, out of a small flock. I have often met with them in the State since, but cannot recall seeing them later than the middle of May, and I think their remaining so late, or breeding so far south, rare and exceptional, and that latitude 40° to 41° is their southern breeding limit, and 54° their northern.

HABITAT. Eastern North America; north into the fur regions; west to the high plains; south to South America; West Indies.

Iris brown; bill, upper blackish, under bluish, with the end dusky; legs and feet brown; claws dark brown.

The following description of this familiar species is from "North American Land Birds," Vol. II, p. 150:

"Of all our unmimetic and natural songsters, the Bobolink is by far the most popular and attractive. Always original, and peculiarly natural, its song is exquisitely musical. In the variety of its notes, in the rapidity with which they are uttered, and in the touching pathos, beauty and melody of their tone and expression, its notes are not equaled by those of any other North American bird. We know of none among our native feathered songsters whose song resembles or can be compared with it.

"In the earliest approaches of spring, in Louisiana, when small flocks of male Bobolinks make their first appearance, they are said by Mr. Audubon to sing in concert; and their song, thus given, is at once exceedingly novel, interesting, and striking. Uttered with a volubility that even borders upon the burlesque and the ludicrous, the whole effect is greatly heightened by the singular and striking manner in which first one singer, and then another, one following the other, until all have joined their voices, take up the note and strike in, after the leader has set the example and given the signal. In this manner, sometimes a party of thirty or forty Bobolinks will begin, one after the other, until the whole unite in producing an extraordinary medley, to which no pen can do justice, but which is described as very pleasant to listen to. All at once the music ceases, with a suddenness not less striking than extraordinary. These concerts are

repeated from time to time, usually as often as the flock alights. This performance may also be witnessed early in April, in the vicinity of Washington, the Smithsonian grounds being a favorite place of resort.

“ By the time these birds have reached in their spring migrations the fortieth parallel of latitude, they no longer move in large flocks, but have begun to separate into small parties and, finally, into pairs. In New England the Bobolink treats us to no such concerts as those described by Audubon, where many voices join in creating their peculiar, jingling melody. When they first appear, usually after the middle of May, they are in small parties, composed of either sex, absorbed in their courtships and overflowing with song. When two or three male Bobolinks, decked out in their gayest spring apparel, are paying their attentions to the same drab-colored female, contrasting so strikingly in her sober brown dress, their performances are quite entertaining, each male endeavoring to outsing the others. The female appears coy and retiring, keeping closely to the ground, but always attended by the several aspirants for her affection. After a contest, often quite exciting, the rivalries are adjusted, the rejected suitors are driven off by their more fortunate competitor, and the happy pair begin to put in order a new home. It is in these love quarrels that their song appears to the greatest advantage. They pour out incessantly their strains of quaint but charming music, now on the ground, now on the wing, now on the top of a fence, a low bush or a swaying stalk of a plant that bends with their weight. The great length of their song, the immense number of short, variable notes of which it is com-

posed, the volubility and confused rapidity with which they are poured forth, the eccentric breaks, in the midst of which we detect the words 'Bob-o-link' so distinctly enunciated, unite to form a general result to which we can find no parallel in any of the musical performances of our other song birds. It is at once a unique and a charming production. Nuttall speaks of their song as monotonous, which is neither true nor consistent with his own description of it. To other ears they seem ever wonderfully full of variety, pathos and beauty.

"When their contests are ended, and the mated pair take possession of their selected meadow, and prepare to construct their nest and rear their family, then we may find the male bird hovering in the air over the spot where his homely partner is brooding over her charge. All this while he is warbling forth his incessant and happy love song; or else he is swinging on some slender stalk or weed that bends under him, ever overflowing with song and eloquent with melody. As domestic cares and paternal responsibilities increase, his song becomes less and less frequent. After a while it has degenerated into a few short notes, and at length ceases altogether. The young in due time assume the development of mature birds, and all wear the sober plumage of the mother. And now there also appears a surprising change in the appearance of our gaily attired musician. His showy plumage of contrasting white and black, so conspicuous and striking, changes with almost instant rapidity into brown and drab, until he is no longer distinguishable, either by plumage or note, from his mate or young.

"At the north, where the Bobolink breeds, they are not

known to molest the crops, confining their food almost entirely to insects, or the seeds of valueless weeds, in the consumption of which they confer benefit rather than harm. At the south, they are accused of injuring the young wheat as they pass northward in their spring migrations, and of plundering the rice plantations on their return. About the middle of August they appear in almost innumerable flocks among the marshes of the Delaware river. There they are known as the Reedbirds. Two weeks later they begin to swarm among the rice plantations of South Carolina. There they take the name of Ricebirds. In October they again pass on southward, and make another halt among the West India Islands. There they feed upon the seeds of the Guinea grass, upon which they become exceedingly fat. In Jamaica they receive a new appellation and are called Butterbirds. They are everywhere sought after by sportsmen, and are shot in immense numbers for the table of the epicure. More recently it has been ascertained that these birds feed greedily upon the larva of the destructive cotton worm, and in so doing render an immense service to the cultivators of Sea Island cotton."

Their nests are placed in a depression on the ground, in the grass, in the low bottom lands, composed of slender, wire-like stems of grasses. Eggs four or five, .85x.63; ashy white, evenly specked with light drab to grayish and reddish brown, and pale surface markings in the shell; in form, oval. A set of four, taken June 2d, 1867, at Pewaukee, Wisconsin, from a nest on marshy grounds, only measure: .78x.63, .80x.61, .80x.63, .85x.63.

XVII.—COWBIRD.

Molothrus ater (Bodd.).

Summer resident; abundant. Arrive early in March to first of April; begin laying about the last of May; return in October; occasionally linger into November.

HABITAT. The United States, from the Atlantic to the Pacific; north into the southern British possessions; south in winter to southern Mexico.

Iris brown; bill, legs, feet and claws black.

This widely distributed species are strictly gregarious and polygamous in their habits, and indiscriminate eaters of seeds, grains, berries and insects. During the winter months, in company with the Bobolink and Red-winged Blackbird, do much damage in the rice fields, and are to be looked for in summer about the corrals and grazing grounds, following the cattle and horses about over the range to catch the flies that bite and annoy them; welcome friends, they are allowed to perch and rest upon their backs at pleasure. In spring and early summer the males, with raised feathers, spread tails and throats puffed out, utter a guttural song, or rather attempt at one, which is no doubt pleasing to the females, but in all of their amorous actions there appears to be but little rivalry or jealousy—a happy family of free-lovers.

These birds never build a nest, but drop their eggs into the nests of smaller birds; in doing so, do not try to take possession by force, but by stealth, during the absence of the owners, and, as these birds are polygamous, exhibit no conjugal affection or love for their offspring, leaving the labor and care of hatching and rearing their young to

their foster parents; and I find by observation that the egg or eggs so dropped are the first to hatch, and being much the larger and stronger, receive the greater share of food, the rightful little claimants being soon trodden to death or crowded out of their home.

On account of their manner of laying, we have no way of determining the number of eggs laid in a season. As a rule, but one egg is found in a nest, and I think that, with a view to survival, the bird distributes her eggs, and that the extra ones occasionally found are the eggs of different Cowbirds. They vary greatly in size, averaging about .85x.63; bluish white, thickly spotted and speckled with ashy to reddish brown and occasional splashes of purple; in form, oval.

XVIII.—BALTIMORE ORIOLE.

Icterus galbula (LINN.).

Summer resident; common. Arrive the last of April to first of May; begin laying the last of May; return the last of August to middle of September.

HABITAT. Eastern North America; north to New Brunswick and Manitoba, west to the base of the Rocky Mountains; south in winter to Panama.

Iris dark brown; bill, ridge black, rest light blue; legs, feet and claws dark blue.

This familiar Oriole is very similar in habits to the Orchard, but is less lively in actions, and ranges much farther north. The males arrive in the spring at least a week ahead of the females, and their brilliant plumage and varied mellow whistling song insure them a welcome. The females also occasionally warble a few low, pleasing

notes. They are very beneficial in their destruction of caterpillars and other injurious worms and insects, upon which they almost wholly subsist, occasionally plucking for a dessert a berry from a bush or a pea from the pod; but never claim a hundredth part of the share to which they are rightfully entitled.

Their nests are suspended from the extremities of branches (the elm appears to be the favorite tree), fifteen to forty feet from the ground; a compact, strongly-woven, deep, purse-like structure, composed of and attached to the twigs from which it hangs, with flax-like strippings from plants and vines, and lined with hair-like stems of grasses; when in the vicinity of dwellings, twine and thread are used largely in its makeup. Eggs four or five, .92x.60; pale bluish white, with a rosy hue when fresh, marked with long, waving lines and spots of purple and blackish brown, chiefly at larger end; in form, oval to ovate.

XIX.—ORCHARD ORIOLE.

Icterus spurius (LINN.).

Summer resident; abundant. Arrive the last of April to first of May; begin laying the last of May; return the last of August to middle of September.

HABITAT. Eastern United States; west to the base of the Rocky Mountains; south in winter to Panama.

Iris dark brown; bill, upper black, under pale blue; legs, feet and claws bluish black.

This species is rarely met with in the northern United States, but is very common in the middle and southern portions. Its favorite resorts are along the prairie streams skirted with timber, and the groves and orchards about

our dwellings; an active, restless bird, ever upon the move, flying and hopping about among the branches of trees, often swinging head downward in its search for insect life, upon which it almost wholly feeds during the early breeding season, singing as it flies, or from the perch uttering its hurried but pleasing song, which is occasionally heard in autumn.

Their nests are suspended from twigs, at the end of branches of small trees, along the banks of streams and in orchards and gardens; a beautiful hemispherical nest, made wholly of a long, slender, wire-like grass, and occasionally bits of a cottony substance, neatly and ingeniously woven together and around the leaf-like twigs that support it. Eggs four or five, .85x.60; pale bluish white, thinly marked with specks and zigzag lines of light to reddish brown and lilac, thickest about larger end; in form, oval.

XX.—BLUE JAY.

Cyanocitta cristata (LINN.).

Resident; abundant in the eastern portion of the State; common along the streams, where skirted with trees, to a little beyond the center; not observed in the extreme western part. Begin laying the last of April.

HABITAT. Eastern United States, except Florida (where they are replaced by *C. cristata florincola*); north into the fur regions of the British possessions; west to the Great Plains.

Iris dark brown; bill, legs, feet and claws black.

I know that I cannot please the reader better than by giving the following interesting description, by Nuttall,

of this handsome, conspicuous bird, of questionable character, wherein he says:

“The Blue Jay is a constant inhabitant both of the wooded wilderness and the vicinity of the settled farm, though more familiar at the approach of winter and early in spring than at any other season. These wanderings or limited migrations are induced by necessity alone; his hoards of grain, nuts and acorns either have failed or are forgotten; for, like other misers, he is more assiduous to amass than to expend or enjoy his stores, and the fruits of his labors very frequently devolve to the rats or squirrels, or accidentally assist in the replanting of the forest. His visits at this time are not unfrequent in the garden and orchard, and his usual petulant address of “Djây, jây, jây,” and other harsh and trumpeting articulations, soon make his retreat known to all in the neighborhood. So habitual is this sentinel cry of alarm, and so expressive, that all the birds within call, as well as other wild animals, are instantly on the alert, so that the fowler and hunter become generally disappointed of their game by this his garrulous and noisy propensity; he is, therefore, for his petulance, frequently killed without pity or profit, for his flesh, though eaten, has little to recommend it. His more complaisant notes, when undisturbed, though guttural and echoing, are by no means unpleasant, and fall in harmoniously with the cadence of the feathered choristers around him, so as to form a finishing part to the general music of the grove. His accents of blandishment, when influenced by the softer passions, are low and musical, so as to be scarcely heard beyond the thick branches where he sits concealed; but, as soon as discovered, he bursts out into

notes of rage and reproach, accompanying his voice by jerks and actions of temerity and defiance. . . . He also exhibits a great antipathy to the Owl, and by his loud and savage vociferation soon brings together a noisy troop of all the busy birds in the neighborhood. To this garrulous attack the night wanderer has no reply but a threatening stare of indifference, and, as soon as opportunity offers, he quietly slips from his slandering company. Advantage, in some countries, is taken of this dislike for the purpose of catching birds; thus the Owl being let out of a box, sometimes makes a hoot, which instantly assembles a motley group, who are then caught by lining the neighboring twigs on which they perch. In this gossip the Jay and Crow are always sure to take a part, if within sight or hearing of the call, and are thus caught or destroyed at will. The common Jay is even fond of imitating the harsh voice of the Owl and the noisy Kestrel. I have also heard the Blue Jay mock, with a taunting accent, the 'Kē-oo, kē-oo,' or quailing of the Red-shouldered Hawk. Wilson likewise heard him take singular satisfaction in teasing and mocking the little American Sparrow Hawk, and imposing upon him by the pretended complaints of a wounded bird, in which frolic several would appear to join, until their sport sometimes ended in sudden consternation, by the Hawk, justly enough, pouncing on one of them as his legitimate and devoted prey.

"His talent for mimicry, when domesticated, is likewise so far capable of improvement as to enable him to imitate human speech, articulating words with some distinctness; and on hearing voices, like a parrot, he would endeavor to contribute his important share to the tumult.

Bewick remarks of the common Jay, that he heard one so exactly counterfeit the action of a saw, that though on a Sunday, he could scarcely be persuaded but that some carpenter was at work. Another, unfortunately, rendered himself a serious nuisance by learning to hound a cur dog upon the domestic cattle, whistling and calling him by name, so that at length a serious accident occurring in consequence, the poor Jay was proscribed. The Blue Jay becomes also, like the Crow and Magpie, a very mischievous purloiner of everything he is capable of conveying away and hiding. . . .

“The favorite food of this species is chestnuts, acorns, and Indian corn or maize, the latter of which he breaks before swallowing. He also feeds occasionally on the larger insects and caterpillars, as well as orchard fruits, particularly cherries, and does not even refuse the humble fare of potatoes. In times of scarcity he falls upon carrion, and has been known to venture into the barn, through accidental openings; when, as if sensible of the danger of purloining, he is active and silent, and if surprised, postponing his garrulity, he retreats with noiseless precipitation, and with all the cowardice of a thief. The worst trait of his appetite, however, is his relish for the eggs of other birds, in quest of which he may frequently be seen prowling, and with a savage cruelty he sometimes also devours the callow young, spreading the plaint of sorrow and alarm wherever he flits. The whole neighboring community of little birds assemble at the cry of distress, sometimes, however, succeeding in driving off the ruthless plunderer, who, not always content with the young, has been seen to attack the old, though with dubious success;

but to the gallant and quarrelsome Kingbird, he submits like a coward, and driven to seek shelter, even on the ground, from the repeated blows of his antagonist, sneaks off well contented to save his life."

Their nests are placed on branches, near the trunks or bodies of trees and bushes, in the forests, and in the vicinity of dwellings, six to thirty feet from the ground. They are rudely composed of small sticks, roots and various kinds of material at hand, strongly interwoven, and lined with fine rootlets. Eggs four or five, 1.10x.82; olive, sparingly spotted with drab and olive brown; in form, ovate.

XXI.—AMERICAN CROW.

Corvus americanus (AUD.).

Resident; abundant in the eastern part of the State, not common in the western portion. Begin laying the last of March to the first of April.

HABITAT. North America, from the fur countries to Mexico.

Iris dark brown; bill, legs, feet and claws black.

As much as I love the birds, I cannot find it in my heart to put in a plea for this well known nest-robber and bird of ill repute, for their thievish propensities are too great to attempt to show that the good they do overbalances the harm. Various are the ways resorted to by the farmer to not only scare them away but to destroy them. Notwithstanding this, the cunning, sagacious birds manage to live and thrive in their midst. They are rather gregarious and social in their habits, often assembling together in large flocks, and they select and have common roosting places, where they gather from miles and miles around,

arriving silently at eve, and stealing away at early dawn. Their flights are direct and well sustained.

Their nests are placed in the forks of trees, in groves and on the timbered bottom lands, thirty to seventy feet from the ground. They are composed of sticks and lined with grasses, fibrous strippings from plants, and hairs. Eggs four or five, 1.65x1.20; light to dark green, and irregularly spotted, splashed or blotched with various shades of pale to dark brown and purple, usually the thickest around the larger end; in form, oval to ovate.

XXII.—KINGBIRD.

Tyrannus tyrannus (LINN.).

Summer resident; abundant. Arrive the last of April; begin laying about the middle of May; return in September.

HABITAT. Temperate North America, chiefly east of the Rocky Mountains; very rare on the Pacific coast; south in winter into northern South America.

Iris dark brown; bill and claws black; legs and feet grayish to brownish black.

This common and well known species are rightly entitled to the name they bear, on account of their brave, audacious attacks upon the birds of prey and others intruding upon their breeding grounds. This combative spirit, however, closes with the season, and their shrill, twittering notes are seldom heard after the young are capable of providing for themselves. The males arrive about a week in advance, and on the arrival of the females, many a hard battle is fought for the choice. Their courtships are short, and, when once mated, they are true and devoted,

and zealous guardians of their homes. The following truthful description is from "Birds of New England," by Samuels:

"During the mating and breeding season, the pugnacity and courage of the Kingbird are proverbial. If any bird approach the neighborhood of his nest, he immediately attacks it; and, whether Crow (his particular dislike), Hawk or Eagle, the intruder is obliged to flee, so fierce an onslaught does this little warrior make on him. As soon as the cry of a Crow is heard, he is all activity; he flies from the tree where he is perching to reconnoiter, uttering his shrill twitter, and vibrating his wings in short, quick, nervous strokes; as soon as the Crow appears, the Kingbird pursues it, his flight being now very swift and powerful. As soon as he nears his foe, he flies above him, and darting down on his back and head, attacks him with such vigor, that the Crow dives and dodges to avoid him. He repeats his attacks, and follows his enemy, sometimes to the distance of a mile or more; then, returning to his mate, he perches on the tree by her nest, and twitters a volley of courageous songs." [Song is not the word, for its notes are not musical, but rather a harsh, exulting twitter.]

"The food of the Kingbird consists mostly of insects,* which he captures usually while on the wing. It seems a provision of nature, that all the flycatchers shall only take those insects that have taken flight from the foliage of trees and shrubs, at the same time making the warblers and other birds capture those which remain concealed in such places. The Kingbird, in seizing a flying insect,

* Berries also help to make up their bill of fare, the pokeberry being the favorite.

flies in a sort of half flitting hover, and seizes it with a sharp snap of the bill. Sometimes he descends from his perch and captures a grasshopper that has just taken a short flight, and occasionally seizes one that is crawling up some tall stalk of grass. Those farmers who keep bees dislike this bird, because of his bad habit of eating as many of those insects as show themselves in the neighborhood of his nest; but they should remember that the general interests of agriculture are greater than those of a hive of bees."

Their nests are usually placed on branches of trees, in open and exposed situations, six to twenty feet from the ground; in treeless localities, in almost any available place; a rather bulky, flat structure, composed of stems of weeds and grasses, and lined with hair-like rootlets, and often, woven in with the same, bits of rags and twine. Eggs three to six, usually four, .90x.68. They vary greatly in size, and measurements as high as 1.05x.75 have been given. (Ridgway says .95x.69.) A set of four eggs, taken at Neosho Falls, only measure: .78x.64, .79x.65, .80x.66, .82x.67; white to creamy white, thinly spotted with purple to dark reddish brown; in form, ovate.

XXIII.—RUBY-THROATED HUMMINGBIRD.

Trochilus colubris (LINN.).

Summer resident; common in the eastern portion of the State. Arrive the last of April to first of May; begin laying the last of May; the bulk leave in September; a few remain into October.

HABITAT. Eastern North America; west to the high central plains; north into the fur countries, and south in winter to Cuba, and through eastern Mexico to Veragua.

Iris dark brown; bill, legs, feet and claws black.

These hardy little beauties begin to arrive from the south as soon as the cherry and apple trees are in blossom; the males several days in advance; brave, pugnacious little fellows, that, during the mating season, will fight their rivals for their lady loves, till death; and in defense of their homes boldly attack the larger birds, and often dart at and try to frighten man away. They breed from the Gulf coast north to at least the fifty-seventh parallel. The following beautiful description of their flights and manner of feeding is taken from "Our Birds in their Haunts," by Mr. Langille:

"There are many birds the flight of which is so rapid that the strokes of their wings cannot be counted, but here is a species with such nerve of wing that its wing strokes cannot be seen. 'A hazy semicircle of indistinctness on each side of the bird is all that is perceptible.' Poised in the air, his body nearly perpendicular, he seems to hang in front of the flowers which he probes so hurriedly, one after the other, with his long, slender bill. That long, tubular, fork-shaped tongue may be sucking up the nectar from those rather small cylindrical blossoms, or it may be capturing tiny insects housed away there. Much more like a large sphynx moth, hovering and humming over the flowers in the dusky twilight, than like a bird, appears this delicate fairy-like beauty. How the bright green of the body gleams and glistens in the sunlight; while the ruby colored throat, changing with the angle of light as the bird moves, is like a bit of black velvet above the white under parts, or it glows and shimmers like a flame. Each imperceptible stroke of those tiny wings conforms to the

mechanical laws of flight in all their subtle complications, with an ease and gracefulness that seems spiritual. Who can fail to note that fine adjustment of the organs of flight to aerial elasticity and gravitation, by which that astonishing bit of nervous energy can rise and fall almost on the perpendicular, dart from side to side, as if by magic, or, assuming the horizontal position, pass out of sight like a shooting star? Is it not impossible to conceive of all this being done by that rational calculation which enables the rower to row, or the sailor to sail his boat?"

Their deep, cup-shaped nests are usually built on small, horizontal limbs of trees, six to twelve feet from the ground; a delicate, beautiful structure, composed of a cottony substance, and soft, silky fibers from plants, the outside dotted over with lichen. Eggs two (varying in size), .48x.33; pure white; in form, rather elliptical.

XXIV.—CHIMNEY SWIFT.

Chaetura pelagica (LINN.).

Summer resident; abundant in the eastern part of the State. Arrive the last of April; begin laying the latter part of May; return in September; a few occasionally remain into October.

HABITAT. Eastern North America; north to Labrador, Manitoba, etc.; west to the edge of the plains; south of the United States in winter to Cozumel Island, Jalapa, Mexico, and possibly farther.

Iris dark brown; bill and claws black; legs and feet brownish black. The above are fresh measurements of a pair of adult birds, shot in the month of June. From other

measurements as given, the bird should average a little larger.

These wild, restless birds are gregarious and social in their habits. I have often found them in the Indian Territory and early settlements of Kansas, occupying large hollow trees—the sycamore the favorite—and they occasionally continue to do so in settled localities, but as a rule prefer the habitations of man, and they are most abundant about our city homes, secreting themselves during the day and night, chiefly within unused chimneys, occasionally in other suitable dark retreats, coming forth at eve like the bats, but a little earlier, retiring at dark. They are occasionally to be seen flying about during the middle of bright, sunshiny days, but as a rule are rather crepuscular in their habits.

Their food consists entirely of winged insects, in search of which they never seem to flag or weary, crossing and recrossing each other's course in their circling, chattering flights, gliding along with rapid strokes of the wings or sailing with motionless wings, as best suits their purpose. On account of their extremely long wings, they cannot readily rise from a level surface, and therefore select, for a resting place, the perpendicular sides or edges of an elevation, where they can at once launch into the air. Their peculiarly-formed feet and spine-tipped tails enable them to grasp and rest at ease in such positions.

Their nests are placed in hollow trees, chimneys, etc.; a peculiar saucer-shaped semicircular structure, composed of small sticks of uniform length and size, which are strongly glued together and fastened to the wall with an adhesive saliva from the birds. Eggs usually four,

.75x.50; pure white; not highly polished; in form, rather elliptical ovate,

XXV.—NIGHT-HAWK.

Chordeiles virginianus (GMEL.).

Summer resident; common in the eastern to the middle portion of the State; rare in the western. Arrive the first of May; begin laying the last of May; return in September; a few occasionally remain into October.

HABITAT. Eastern North America; north to Hudson's Bay; west to edge of Great Plains; (to Pacific coast along the northern border of the United States;) south in winter to Bahamas, Cuba, Jamaica, (breeds?) middle America, and portions of eastern South America. (*Ridgway.*)

Iris, bill and claws blackish; legs and feet dark grayish brown.

This is one of our most common birds of the open lands and prairies. Strictly speaking, it is a diurnal bird, but more or less crepuscular in habits, retiring to rest regularly at the close of twilight. In flight they are graceful and pleasing, gliding with ease through their various evolutions and quick turns, skimming with spread tail in a buoyant, effortless manner near the ground or high in air, rising and dropping suddenly, and at times with a quick upward turn that causes a hollow, whirring sound, produced, I think, by the quick vibrations of the wings upon the air. Their voice is an occasional squeak or a "Pe-up" note, and, when wounded or in the protection of their young or eggs, often startle the intruder by quickly raising their feathers and emitting through their widely-

opened mouth a sharp, hissing sound; and during love making and caressing I have heard the males utter low, cooing notes.

Their food consists of small winged insects that abound in the air, especially at morn, late in the afternoon and at eve, which accounts for their activity at such times.

Eggs two, 1.22x.82; grayish white, thickly mottled all over with various tints of lilac purple and yellowish brown; they are laid upon the bare ground, in open and exposed situations; in form, rounded elliptical.

XXVI.—WHIP-POOR-WILL.

Antrostomus vociferus (WILS.).

Summer resident; rare; quite common during migration in the eastern portion of the State. Arrive the middle of May; begin laying the latter part of May; return in September.

HABITAT. Eastern United States to the Plains; north to Nova Scotia, Manitoba, etc.; south in winter to Guatemala.

Iris bluish black; bill and claws black; legs and feet grayish brown.

This bird of the night secretes itself, during the day, in the deep, shady thickets, and were it not for its oft-repeated and familiar voice, (heard during the mating season, and occasionally late in autumn,) its presence, even when quite common, would seldom be known, as it does not leave its secluded retreats until the shades of evening darken, and the silvery bugle notes of the Wood Thrush — one of the latest of the day songsters — are hushed. Wilson says:

“ This is a singular and very celebrated species, universally noted, over the greater part of the United States, for the loud reiterations of its favorite call in spring; and yet, personally, is but little known, most people being unable to distinguish this from the preceding species (Nighthawk), when both are placed before them, and some insist that they are the same. This being the case, it becomes the duty of the historian to give a full and faithful delineation of his character, and peculiarity of manners, that his existence as a distinct and independent species may no longer be doubted, nor his story mingled confusedly with that of another. I trust that those best acquainted with him will bear witness to the fidelity of the portrait.

“ On or about the 25th of April, if the season be not uncommonly cold, the Whip-poor-will is first heard in this part of Pennsylvania, in the evening, as the dusk of twilight commences, or in the morning, as soon as dawn has broke. In the State of Kentucky, I first heard this bird on the 14th of April, near the town of Danville. The notes of this solitary bird, from the ideas which are naturally associated with them, seem like the voice of an old friend, and are listened to by almost all with great interest. At first they issue from some retired part of the woods, the glen or mountain; in a few evenings, perhaps, we hear them from the adjoining coppice, the garden fence, the road before the door, and even from the roof of the dwelling house, long after the family have retired to rest. Some of the more ignorant and superstitious consider this near approach as foreboding no good to the family—nothing less than sickness, misfortune or death to some

of its members. These visits, however, so often occur without any bad consequences, that this superstitious dread seems to be on the decline.

“He is now a regular acquaintance. Every morning and evening his shrill and rapid repetitions are heard from the adjoining woods; and when two or more are calling out at the same time, as is often the case in the pairing season, and at no great distance from each other, the noise, mingling with the echoes from the mountains, is really surprising. Strangers in parts of the country where these birds are numerous find it almost impossible for some time to sleep, while to those long acquainted with them the sound often serves as a lullaby to assist their repose.

“These notes seem pretty plainly to articulate the words which have been generally applied to them, Whip-poor-will, the first and last syllables being uttered with great emphasis, and the whole is in about a second to each repetition; but, when two or more males meet, their Whip-poor-will altercations become much more rapid and incessant, as if each were straining to overpower or silence the other. When near, you often hear an introductory cluck between the notes. At these times, as well as at almost all others, they fly low, not more than a few feet from the surface, skimming about the house and before the door, alighting on the woodpile or settling on the roof. Towards midnight they generally become silent, unless in clear moonlight, when they are heard with little intermission till morning. If there be a creek near, with high, precipitous, bushy banks, they are sure to be found in such situations. During the day they sit in the most

retired, solitary and deep-shaded parts of the woods, generally on high ground, where they repose in silence. When disturbed, they rise within a few feet, sail low and slowly through the woods for thirty or forty yards, and generally settle on a low branch or on the ground. Their sight appears deficient during the day, as, like Owls, they seem then to want that vivacity for which they are distinguished in the morning and evening twilight. They are rarely shot or molested; and, from being thus transiently seen in the obscurity of dusk or in the deep umbrage of the woods, no wonder their particular markings of plumage should be so little known, or that they should be confounded with the Nighthawk, whom in general appearance they so much resemble."

The birds make no nest. Eggs two; laid in a depression on the ground, among the leaves in thickets and heavily-wooded lands. A set collected June 5th, 1871, at Pewaukee, Wisconsin, in the woods, under a thick growth of bushes, measure: 1.09x.80, 1.12x.78; cream white, irregularly spotted and mottled with lavender and pale brown; in form, elliptical.

XXVII.—DOWNY WOODPECKER.

Dryobates pubescens (LINN.).

Resident; common. Begin laying the last of April.

HABITAT. Northern North America; south in the eastern portion to the Gulf coast.

Iris dark brown; bill slate blue; legs, feet and claws pale blue.

These restless, energetic little Woodpeckers are very

similar in their actions and habits to the Hairy, but more social and less fearful of man. Wilson says:

“The principal characteristics of this little bird are diligence, familiarity, perseverance, and strength and energy in the head and muscles of the neck which are truly astonishing. Mounted on the infected branch of an old apple tree, where insects have lodged their corroding and destructive brood in crevices between the bark and wood, he labors sometimes for half an hour incessantly at the same spot before he has succeeded in dislodging and destroying them. At these times you may walk up pretty close to the tree, and even stand immediately below it, within five or six feet of the bird, without in the least embarrassing him. The strokes of his bill are distinctly heard several hundred yards off, and I have known him to be at work for two hours together on the same tree. Buffon calls this ‘incessant toil and slavery,’ their attitude ‘a painful posture,’ and their life ‘a dull and insipid existence’—expressions improper because untrue, and absurd because contradictory. The posture is that for which the whole organization of his frame is particularly adapted, and though to a Wren or a Hummingbird the labor would be toil and slavery, yet to him it is, I am convinced, as pleasant and amusing as the sports of the chase to the hunter, or the sucking of flowers to the Hummingbird. The eagerness with which he traverses the upper and lower sides of the branches, the cheerfulness of his cry and the liveliness of his motions while digging in the tree and dislodging the vermin, justifies this belief. He has a single note, or ‘Chink,’ which, like the former species, he frequently repeats; and when he

flies off or alights on another tree, he utters a rather shriller cry, composed of nearly the same kind of a note, quickly reiterated. In the fall and winter he associates with the Titmouse, Creeper, etc., both in their wood and orchard excursions, and usually leads the van. Of all our Woodpeckers, none rid the apple trees of so many vermin as this, digging off the moss which the negligence of the proprietor has suffered to accumulate, and probing every crevice. In fact the orchard is his favorite resort in all seasons, and his industry is unequalled and almost incessant, which is more than can be said of any other species we have. In the fall he is particularly fond of boring the apple trees for insects, digging a circular hole through the bark just sufficient to admit his bill; after that a second, third, etc., in pretty regular horizontal circles around the body of the tree. These parallel circles of holes are often not more than an inch or an inch and a half apart, and sometimes so close together that I have covered eight or ten of them at once with a dollar. From nearly the surface of the ground up to the first fork, and sometimes far beyond it, the whole bark of many apple trees is perforated in this manner, so as to appear as if made by successive discharges of buckshot, and our little Woodpecker, the subject of the present account, is the principal perpetrator of this supposed mischief—I say supposed; for so far from these perforations of the bark being ruinous, they are not only harmless, but, I have good reason to believe, really beneficial to the health and fertility of the tree. I leave it to the philosophical botanist to account for this, but the fact I am confident of. In more than fifty orchards which I, myself, have carefully ex-

amined, those trees which were marked by the Woodpecker (for some trees they never touch, perhaps because not penetrated by insects) were uniformly the most thriving, and seemingly the most productive. Many of these were upwards of sixty years old, their trunks completely covered with holes, while the branches were broad, luxuriant, and loaded with fruit. Of decayed trees, more than three-fourth were untouched by the Woodpecker. Several intelligent farmers with whom I have conversed candidly acknowledged the truth of these observations, and with justice look upon these birds as beneficial; but the most common opinion is that they bore the trees to suck the sap, and so destroy its vegetation, though pine and other resinous trees, on the juice of which it is not pretended that they feed, are often found equally perforated. Were the sap of the tree their object, the saccharine juice of the birch, the sugar maple and several others would be much more inviting, because more sweet and nourishing than that of either pear or apple tree; but I have not observed one mark on the former for ten thousand that may be seen on the latter; besides, the early part of the spring is the season when the sap flows most abundantly, whereas it is only during the months of September, October and November that Woodpeckers are seen so indefatigably engaged in orchards, probing every crack and crevice, boring through the bark, and, what is worth remarking, chiefly on the south and southwest sides of the tree, for the eggs and larvæ deposited there by the countless swarms of summer insects. These, if suffered to remain, would prey upon the very vitals (if I may so express it) of the tree, and in the succeeding summer

give birth to myriads more of their race, equally destructive."

For the above supposed reason, the birds so beneficial, and in no sense injurious, are frequently misnamed "Sapsuckers," a term not applicable to any of our Woodpeckers, except genus *Sphyrapicus*.

The nests are excavated in decaying limbs, or bodies of small trees, usually ten to fifteen feet from the ground (the apple tree a favorite); the entrance round and just large enough to admit the bird, then smoothly chipped downward for several inches, and enlarged to fit the body. Eggs four or five, rarely six, .75x.58; pure crystal white; in form, rather subspherical.

XXVIII.—FLICKER.

Colaptes auratus (LINN.).

Resident; common. Begin laying the last of April.

HABITAT. Eastern North America; north to Hudson's Bay; west to the eastern slope of the Rocky Mountains; also reported from Alaska, where we would only naturally look for the Northwestern Flicker.

Iris dark brown; bill slate blue; legs and feet ashy or light lead color; claws horn blue.

This well known, familiar bird is as much at home on our prairies as within the wooded districts. Mr. Langille, in his interesting work, "Our Birds in their Haunts," says:

"Next to the Robin, Bluebird or Barn Swallow, few members of the feathered tribes are better known than the 'Flicker,' 'High-hole,' 'Yellow-hammer,' etc., for the Goldenwing is known by all these names. His several

notes are among the most characteristic sounds of spring, at which time he is thoroughly noisy. Coming from the south in large numbers, late in March or early in April, ascending some tall, dry tree top, at early dawn, he announces himself, either by a sonorous rapping on the dry wood, or by a loud squealing, but jovial call, 'Chee-ah, chee-ah,' which, once noted, is not easily forgotten. But even this latter is not half so awakening as a certain prolonged strain, nearly two syllables in regular repetition, something like 'Whrie'k-ah, whrie'k-ah, whrie'k-ah, whrie'k-ah, whrie'k-ah, whrie'k-ah.' This vocal performance, meant for a song, no doubt, is a mere rollicking racket, toned down, indeed, amidst the many voices of spring, and even rendered pleasing by its good-natured hilarity. How significant is that little love note, 'Yu-cah,' half guttural, half whisper, which he repeats at intervals, as he flits about the solitude of the forest in spring, or plays bo-peep with his lover, around the broken-off top or limb of some dead tree.

"His flight is swift, vigorous and dashing; is performed in curves by a few flaps of the wings, curving upward several feet, when alighting on the trunk of a tree, but ending horizontally when alighting crosswise on a limb, after the manner of perching birds. In manner, as in structure, he is not precisely like the rest of his family. At home anywhere, from the tallest tree top to the ground, and always in a hurry when afoot, he will capture his insect food after the manner of Robins and Sparrows. Ants of all sizes are especially in favor with him."

Berries, fruits, nuts and grains also help to make up their bill of fare. They usually select for a nesting place

an old stub or decaying tree, and readily excavate a hole or dress up a cavity in the same to suit, and where suitable trees are not convenient to their chosen homes, they will chip through cornices and into nooks in outbuildings—in fact, take possession of most any dark, suitable cavity. Eggs usually five to seven; a much larger number have occasionally been found, but in such cases I am inclined to think other females assisted, although, when robbed of the egg as laid, the bird will often continue laying to the number of twenty and upward. They vary much in size. Ridgway says, $1.10 \times .85$; I make the average dimensions of a few sets to be $1.06 \times .84$; pure pearly white; in form, rather elliptical to oblong ovate. A set collected May 11th, 1878, at Pewaukee, Wisconsin, only measure: $1.00 \times .81$, $1.03 \times .80$, $1.03 \times .82$, $1.05 \times .82$.

XXIX.—BELTED KINGFISHER.

Ceryle alcyon (LINN.).

A common summer resident, and when the winters are mild, an occasional resident. Begin laying about the last of April.

HABITAT. The whole of North America; south to Panama, including the West Indies.

The birds vary somewhat in size; specimens examined, however, show the females fully as large as the males.

Iris dark brown; bill black, or rather slate, with sides of upper to nostrils, and forks of under, pale blue; legs dull purple to greenish blue; feet dusky, bottoms pale, with a slight yellowish hue; claws black.

This widely distributed and solitary species appears to be as much at home in the Arctic regions as within the

tropical, often remaining there until the ice closes their natural fishing grounds, and hunger forces them to seek for the finny tribe in similar open waters. Their favorite resorts are along the margins of ponds, and at the foot of shallow rapids, where they patiently watch from an overhanging limb, or perch, ready to dive for the unlucky minnow that approaches to the surface of the water, seldom failing to capture. They are equally successful on the wing, hovering for a time before plunging; in all cases carrying the catch to the nearest resting place, where they usually kill it by beating it against the perch, and always swallow the same head-first.

In flight the motion of their wings is very rapid, and their course direct, and usually near the surface of the water. Their voice is shrill and harsh, much like the sound of a watchman's rattle.

Their nests are placed at the end of burrows, which the birds tunnel horizontally into the sides and near the tops of perpendicular or steep banks of streams, and occasionally into the sides of gravel banks, some distance from the water; are usually about two feet in depth, but have been known to extend over fifteen feet; in fact, not stopping work until a place is reached where they can safely rear their young without fear from falling earth or pebbles. At the end it is scooped out oven-shaped for the nest, which is sometimes sparingly lined with grasses and feathers. Eggs five or six, 1.32x1.05; pure white; in form, oval.

XXX.—YELLOW-BILLED CUCKOO.

Coccyzus americanus (LINN.).

A summer resident; common. Arrive early in May; begin laying the last of May; return early in September; a few occasionally linger until the first of October.

HABITAT. Eastern North America; south from New Brunswick, Canada, etc., to the West Indies and Costa Rica; west to eastern Mexico and the edge of the Great Plains. They are known to breed within their range as far south as the West Indies.

Iris brown; legs and feet bluish olive; claws horn blue.

This species is generally known as the "Rain Crow" or "Cowbird"; the latter on account of its call notes: "Kow, kow, kow, kow, kow," uttered rapidly; the former because the birds are more noisy when the atmosphere is moist and warm, and their oft-repeated notes are therefore thought to be an indication of falling weather. Their notes are occasionally heard at night. They inhabit alike the deep, solitary woods, the open groves and prairie thickets. Their flight is noiseless, smooth and swift, gliding with ease through the thick trees and branches. The birds feed upon nearly all forms of insect life; even the ugly caterpillar is devoured with a relish. When the breeding season is over they feed freely upon berries.

The males arrive about eight days in advance of the females; their courtships are of short duration, and they soon commence making preparations for housekeeping.

Their nests, a loose, frail, flat structure made of sticks and weeds, with at times a little grass, are placed in

bushes, grapevines, and on the lower branches of trees, from five to fifteen feet from the ground. The males assist in hatching and rearing the young, and are fully as attentive as the females. They are said to occasionally lay eggs in the nests of other birds, but I think such cases exceptional, for they are too devoted parents to leave—unless by accident—the rearing of their young to others. In this respect they differ from their cousins the European Cuckoos, that are polygamous, and exhibit no paternal affection for their young.

The birds occasionally lay and sit at the same time, and it is not an unusual occurrence to find eggs and young birds of different ages in the same nest; but as a rule they lay, and hatch at one sitting, from three to five eggs, 1.25x.90; light bluish green; in form, rather elliptical.

XXXI.—BALD EAGLE.

Haliaeetus leucocephalus (LINN.).

Resident; rare; not uncommon in winter. Begin laying about the middle of March.

HABITAT. The whole of North America; north to Greenland, and west across the Aleutian chain to Commander Islands, Kamtchatka.

Iris grayish white, tinged with yellow; bill and cere light yellow; legs and feet brownish to lemon yellow.

This national bird is quite common along the seacoast and rivers within the United States, and northward. In build and habits it is closely allied to the *Buteo* family, and has none of the daring dash of the *Accipiter* or Falcon tribes, and lacks the courage of the Golden Eagle. If the founders of our nation had known the habits of this scav-

enger and piratical bird, they would never have selected it as a symbol, but, rather, the bold, self-reliant Golden Eagle. In the air, it is indeed a graceful and magnificent bird, and with its powerful build and proud appearance, they were naturally led to look upon it as the embodiment of courage and perfection. Respecting the habits of the Bald Eagle, Dr. Brewer says:

“The Bald Eagle appears to be equally well adapted by nature for the endurance of heat or cold, and is apparently indifferent to either. Its residence is influenced only by its abundance of food, especially that of fish; and seems to matter very little whether that plenty is procurable within the Arctic circle, or on the coast and rivers of Florida and Texas. In places like the falls of Niagara, where the stream is ever liable to contribute the remains of animals destroyed by the descent of the torrent, this Eagle is especially abundant. Unscrupulous, greedy, voracious, not select in its choice of food, and capable of providing for itself when necessity compels, we find this not altogether unsuitable emblem of our country now enacting the tyrant and robber, and plundering the Fish Hawk of the fruits of its industry, now sharing with the Raven and the Vulture the dead salmon of the Columbia, and in other places diving for and catching its own fish. The impetuosity and skill with which it pursues, overtakes and robs the Fish Hawk, bearing off a fish it has just taken, must be witnessed to be appreciated; and the swiftness with which the Eagle can dart down upon and seize the booty, which the Hawk has been compelled to let fall, before it reaches the water, is not the least wonderful feature of this striking performance. On the banks of the Columbia, where

there are no Fish Hawks to depend upon, this bird finds an easy subsistence on the vast numbers of dead and dying salmon which abound."

While these birds are rather indolent, and prefer to be robbers rather than self-sustaining, they do not lack in courage nor in ability to capture their prey. I have, on several occasions, seen them plunge for and catch fish that were swimming near the surface of the water; they also readily kill Ducks, Geese, lambs, little pigs, etc. They are easily tamed. One that I had in confinement for a long time, became not only familiar, but appeared to be greatly attached to me, and would recognize me at a long distance, calling loudly, and on my near approach, with quivering wings, and in various ways, expressed joy, keeping up a soft, whistling note—that was at times quite musical—until I reached her. She loved to be petted; would rub her head against my face, and allow me to lift her from the perch; a rather rough playmate, that often tore my clothes in attempting to alight upon my shoulder, but not intentionally, and never appeared to be angry with me, but would not allow strangers to touch her.

Their nests are usually placed on high trees, along the banks of streams, but occasionally, where trees are not convenient, built on high, rocky cliffs; a huge platform structure, made of large sticks, and lined with twigs, grasses, and a few feathers. Eggs usually two, sometimes as high as four; average measurements, as given by others, about 2.90x2.30; but two, that I collected at Neah Bay, Washington, only measure: 2.50x1.95, 2.60x2.00; dull white, unmarked; in form, rounded oval.

XXXII.—GOLDEN EAGLE.

Aquila chrysaetos (LINN.).

Resident; rare. I am informed by Dr. G. K. Rumsey that a pair nested for several years in the southeastern part of Comanche county, on a high gypsum ledge; and, as a proof that he was not mistaken, he says that the legs of a young bird captured were feathered to the toes. The late rapid settlement of the county has put a stop to their breeding there. Begin laying about the middle of March.

HABITAT. Northern portion of northern hemisphere; south to Mexico.

Iris brown; bill and claws horn blue; cere and feet greenish yellow.

The natural home of this king of birds is within the mountain regions; it is rarely met with in the eastern portion of the United States, and is not abundant anywhere, but the most common in the western portion of its range. In flight this bird is not swift, but very powerful, sailing for hours without an apparent effort, and often at a great height—a mere speck in the sky. It is gifted with extraordinary sight, and swoops down upon its prey with unerring certainty. A ferocious monarch; a tiger among birds. It preys upon Grouse, Ducks, Geese, Swans, young fawns, lambs, prairie dogs, rabbits, ground squirrels, etc. Some writers state that when pressed with hunger they feed upon carrion. While I know this to be the case with the Bald Eagle, I think this proud bird would starve rather than feed upon a putrid carcass.

I kept one of these birds (a female) over a year in confinement, feeding her chiefly upon fresh beef; if the least

bit tainted she would not touch it, neither would she eat a fresh piece accidentally dropped upon the ground from her claws. A Bald Eagle, in an adjoining pen, would readily eat meat in any stage, and gladly take the pieces rejected by the more noble bird. I tried hard to subdue her, or to be at least on friendly terms, but failed. I know that the birds have been occasionally partially tamed, but this one was untamable, and maintained, during her confinement, the same wild, defiant, ferocious spirit exhibited at her capture. She was especially furious when a dog entered the yard. I saw her pounce upon, pick up and take to her perch a large house cat that ventured within her prison for bits of meat. The grasp was so powerful that life was instantly crushed out—not a struggle, but only a slight quiver of the muscles noticeable. I have often heard them scream loudly in their mountain home, but my bird was sullen and mute.

Their nests are enormous structures of sticks, etc., usually placed on rocky shelves of inaccessible cliffs, occasionally in trees. May 5th, 1884, I found, at Julian, California, a nest placed in and near the top of a tall pine tree—a huge platform structure composed of sticks and twigs, and lined sparingly with grass, moss, and a few feathers. Eggs two or three, 2.90x2.25; white, occasionally unmarked, but usually spotted and blotched with various shades of drab to reddish brown, and a few faint purple shell markings; in form, broadly subspherical.

XXXIII.—MARSH HAWK.

Circus hudsonius (LINN.).

Resident; abundant. Begin laying about the first of May.

HABITAT. The whole of North America; south in winter to Panama, Bahamas and Cuba.

Iris brown; bill horn blue, light at base; cere greenish yellow; legs and feet yellow; claws black.

This widely-distributed species (a sort of connecting link between the Hawks and Owls) has been found breeding as far north as Hudson's Bay and Alaska, and they no doubt occasionally breed northward within their range. I have found them breeding in Lower California, but south of the United States and northern Mexico they are not common, and as a rule only winter sojourners. The birds frequent the lowlands and marshes, not from choice, I imagine, but because the food they seek is the most abundant there; for they appear alike at home upon the plains, in localities where the lizards and small rodents abound.

Its flight is low and not swift, but very light and buoyant, flapping and sailing as it courses over the ground, often hovering with vibrating wings as it catches sight of some unlucky rodent, lizard, frog or bird in the grass beneath; never giving chase, but dropping upon its prey, and eating it where caught, unless in a very exposed situation, when it flies to a more secluded place upon the ground. The birds often alight upon a fence post, but seldom in trees, but I never saw one attempt to feed upon its prey from a perch. In food habits they are not particular; a sort of scavenger, that readily feeds upon the carcass of a bird or fish—in fact, nothing seems to come amiss.

These birds as a whole are very beneficial, though occasionally killing a stray chicken, but seldom venturing within the dooryard; and they have not the courage to tackle a full grown fowl—at least I have never known them to do so, and I have often seen a hen drive them away from her chicks.

Their nests are placed on the ground, in the grass, sometimes under low bushes, and usually on the bottom prairie lands; a slight structure, made usually of grasses; sometimes, on boggy grounds, with a foundation of sticks and weeds. Eggs four to six, 1.86x1.42; bluish white, generally unspotted, but occasionally with faint to distinct spots and blotches of purplish brown; in form, broadly oval.

XXXIV.—RED-TAILED HAWK.

Buteo borealis (GMEL.).

Resident; common. Begin laying the last of February.

HABITAT. Eastern North America; west to the Great Plains.

Iris of adult brown, of young yellowish; bill horn blue; cere greenish yellow; legs and feet light yellow; claws bluish black.

This large, muscular Hawk is rather evenly distributed throughout its range in the United States, and northward. In habits it is rather sluggish, feeding chiefly upon rabbits, mice and moles, which it occasionally swoops down upon from the air, but generally from a perch, where it patiently watches for its prey. It now and then drops upon a Duck, Bob-white, or stray fowl from the yard, but is not quick enough to catch the smaller birds, and never gives chase

after a bird on the wing. It has not the courage or dash to venture within the dooryard, unless in a secluded place. I know the farmer generally looks upon them as an enemy, but after a careful study of their habits, and an examination of many of their stomachs, I have reached the conclusion that they are far more beneficial than injurious, in fact, one of his best friends. In flight they are slow, but steady and strong, with a regular beat of the wings; they also delight to sail in the air, where they float lightly, and with scarcely an apparent motion of the wings, after circling to a great height; and during the insect season, while thus sailing, often fill their craws with grasshoppers, that during the after part of the day also enjoy a sail in the air.

Their nests are placed in the forks of the branches of the tallest trees on the timbered bottom lands; a bulky structure, made of sticks, and lined sparingly with grass, leaves and a few feathers. Eggs two to four, usually two or three, 2.30x1.84; bluish white thinly and irregularly spotted and blotched with various shades of light to dark brown; in form, elliptical to oval.

XXXV.—TURKEY VULTURE.

Cathartes aura (LINN.).

Summer resident; abundant; occasionally seen in winter. Begin laying the last of April.

HABITAT. Nearly the whole of temperate and tropical America, from New England, Manitoba, British Columbia and Washington southward, including the West Indies, to Falkland Islands and Patagonia.

A young female, in the "Goss Ornithological Collec-

tion," reared in confinement and killed December 10th, measures: 26.25, 66.50, 20.00, 10.50, 2.25, .90.

This Vulture is one of the greatest scavengers of nature. A very abundant bird, especially in the warmer climates, where its presence is of incalculable value as a gormandizer of the garbage, filth and carrion that taint the air and breed disease. Were it not for their valuable services, it would be hard to tolerate their disgusting, filthy habits and ungainly ways upon the ground and perch. In the air, however, as it sails and circles high above us, with scarcely an apparent effort, we are forced to admit that it is a magnificent sight, and to inwardly say, "Long live the purifiers of the air." I have raised the young (downy little fellows) from the nest, feeding them wholly upon fresh meat, and find that the rank odor of the body is not produced by the food it eats, but from natural causes, like the smell or musk of many animals.

These birds are mute, their only noise a hiss, like the sound from hot iron being dropped into water. Cowardly birds, that make no defense at their capture, but will occasionally, when approached, raise their feathers, stamp their feet like sheep, and hiss.

Their nests are placed on rocky ledges and in hollow trees and stumps. Eggs two, laid on the bare rocks or débris; no lining; 2.70x1.90; grayish white, variously and unevenly blotched and splashed with light to dark reddish brown and purplish drab; in form, rounded oval.

XXXVI.—SCREECH OWL,

Megascops asio (LINN.).

Resident; abundant. Begin laying early in March.

HABITAT. Temperate eastern North America; south to Georgia and west to the Great Plains.

Iris yellow; bill, cere and claws light greenish horn color.

This is one of our most abundant and well-known night Owls. It inhabits alike the woods and the habitations of man. Its food consists of mice, small birds, insects, etc.; in searching for the same, it flies noiselessly but actively about, occasionally capturing its prey upon the wing, but usually pouncing upon it. These birds are rather easily tamed.

When a small boy, in my old New England home, I reared one from the nest, that was quite attractive, and, as I was the only one that fed or cared for it, it became strongly attached to me, and, no matter how roughly handled, never showed the least bit of anger; but, upon the approach of a stranger, it would erect its feathers and sharply snap its bill. At the sight of the house cat it was wild with fear and rage, and could not be pacified until Thomas was removed. I gave it the liberty of the dark garret beneath the roof of our house, and in the center of the room placed corn, bread and toasted cheese to attract the mice, and, from the ejected pellets of mouse hair, I know that it captured many mice. At night or in a dark place, it would come to me at call, and alight on my arm or hand, take and readily eat insects and small bits of food, but, if the piece was large, would fly with it to its perch

before attempting to eat it. In daytime it seldom came at call, but would always answer with a low, guttural, rattling note. Boy-like, it was one of my chief delights at eve to drop a mouse from a trap into a box. At sight of the mouse it would raise its feathers, quiver with excitement and eagerly pounce upon it, bite it through the back until limp or dead, then, with a chuckling note of satisfaction, carry it to its perch. The birds make quite a variety of low sounds, but the only one heard at a distance is its screeching, tremulous, wailing call note or song, so often heard at eve and during the night, especially when the moon is shining.

Their nests are placed in holes in trees, occasionally in nooks in buildings. They are sparingly lined with grasses, leaves and feathers. Eggs four to six, 1.40x1.22; pure white; in form, subspherical.

XXXVII.—GREAT HORNED OWL.

Bubo virginianus (GMEI.).

Resident; common. Begin laying the last of February.

HABITAT. Eastern North America; west to the edge of the Great Plains; south through eastern Mexico, to Costa Rica.

Iris yellow; bill, cere and claws black.

This bird inhabits not only the wooded lands, but our broad prairies, resting during the day in thickets, hollow trees, clefts in rocks, or most any secluded spot. I have occasionally started them from a hummock, in a rank growth of tall grass. They are not strictly a night bird, as I have often seen them during the day, while rearing their young, in search of food; but, unless pressed by

hunger, seldom venture out until the little day birds, that annoy them greatly, have retired to their roosts. At twilight and on moonlight nights they are the most active, flying noiselessly and with ease through the timber and over the open ground in search of rabbits, mice, and other small quadrupeds that feed and run about at night, doing great damage to the farmer in his fields. It is, therefore, one of our most beneficial birds, and not injurious, except to the owners of fowls that are either too lazy, or not thoughtful enough, to house them at night.

In olden times the Owls, on account of their rounded heads, large bright eyes, and stately mien, were selected by the philosophers as emblems of wisdom; but their gloomy habits and night wanderings impressed the superstitious with the thought that they were the embodiment of evil spirits, and their hoots that broke the stillness of night struck terror to their hearts, as well as to the awakened birds upon the perch, and their voice was supposed to bode no good, and their silent visits the forerunner of death. But of late years, as we come to know their ways and habits better, we more properly associate them with the feline race—emblems of desolation; and this powerful bird may well be called the tiger among birds. Its loud, guttural, “Whaugh, ho, hoo, hoo,” is not only a note of love, but one of defiance. The birds are, however, very attentive parents, both assisting in hatching and rearing their young. The female (as is the case with nearly all birds of prey) is the larger bird, in order to protect the family in case of a quarrel with her mate, and from his too aggressive advances.

It nests in natural cavities of trees, deserted nests of

Hawks, and, on the plains or prairies, in fissures of rocks; nest scantily lined with leaves and grasses. Eggs two to four, 2.25x1.90; white; in form, subspherical.

XXXVIII.—BURROWING OWL.

Speotyto cunicularia hypogaea (BONAP.).

Resident; abundant in the middle and western part of the State. Begin laying about the middle of April.

HABITAT. Western North America; north to or a little beyond the northern boundary of the United States; south to Guatemala; east to middle Texas and Nebraska; occasionally straggle eastward. A specimen captured in New York city, and one in Massachusetts, I think cage birds rather than stragglers, as reported. (The birds in Florida are variety *floridana*.)

Iris yellow; bill light greenish yellow; cere and claws blackish; feet dull brown. From the measurements I have taken of many, I do not think the sexes differ in size. In all other birds of prey the female is decidedly the larger bird.

Dr. Coues, in his "Birds of the Northwest," gives the following full and interesting description of its habits:

"The Burrowing Owl is the only bird of its family inhabiting in any numbers the entirely treeless regions of the West, and may be considered characteristic of the plains. Wherever it can find shelter in the holes of such animals as wolves, foxes and badgers, and especially of the various species of marmot squirrels, there it is found in abundance; and in not a few instances small colonies are observed living apart from their ordinary associates, in holes apparently dug by themselves. They constitute a

notable exception to the general rule of arboricole habits in this family, being especially fitted by their conformation for the subterranean mode of life for which they are designed, and are furthermore exceptional in their gregarious disposition, here carried to the extreme. The diffusion of the species in the West is so general that there is little occasion to mention particular localities.

“The Owls are by no means confined to the dog towns, nor even to the similar communities of other gregarious spermophiles. They sometimes occupy the underground dens of wolves, foxes and badgers. In South America, the representative race lives among the bizcachas (*Lagotomus tzichodactylus*) that inhabit the Pampas. On some occasions the birds have been found alone, residing apparently in burrows excavated by themselves, as already stated. They are by no means nocturnal; able to endure the sunlight without inconvenience, they may be observed abroad at all hours. It has been stated that in autumn, at the approach of cold weather, they retire into their burrows to hibernate—a fable matching the one that ascribes to Swallows the habit of diving into the mud to pass the winter in repose along with torpid frogs. In most localities the birds are abroad the year round; their disappearance in inclement regions is accomplished, if at all, by ordinary migration. In California I saw them, bright and lively as crickets, in November.

“I never undertook to unearth the nest of a Burrowing Owl, but others have been more zealous in the pursuit of knowledge under difficulties. Dr. Cooper says that he once dug two fresh eggs out of a burrow, which he followed down for three feet, and then traced for five feet horizontally,

at the end of which he found an enlarged chamber, where the eggs were deposited on a few feathers. In his interesting note in the American Naturalist, Dr. C. S. Canfield gives a more explicit account of the nesting: 'I once took pains to dig out a nest of the *Athene cunicularia*. I found that the burrow was about four feet long, and the nest was only about two feet from the surface of the ground. The nest was made in a cavity of the ground of about a foot in diameter, well filled with dry, soft horse dung, bits of old blanket, and fur of a coyote (*Canis latrans*) that I had killed a few days before. One of the parent birds was on the nest, and I captured it. It had no intention of leaving the nest, even when entirely uncovered with the shovel and exposed to the open air. It fought bravely with beak and claws. I found seven young ones, perhaps eight or ten days old, well covered with down, but without any feathers. The whole nest, as well as the birds (old and young), swarmed with fleas. It was the filthiest nest I ever saw. In the passage leading to it there were small scraps of dead animals, such as pieces of the skin of the antelope, half dried and half putrified, the skin of the coyote, etc.; and near the nest were the remains of a snake that I had killed two days before, a large *Coluber*, two feet long. The birds had begun at the snake's head and had picked off the flesh clean from the vertebra and ribs for about one-half its length; the other half of the snake was entire. The material on which the young birds rested was at least three inches deep. There are very few birds that carry more rubbish into their nests than the *Athene*; and even the Vultures are not much more filthy. I am satisfied that the *A. cunicularia* lays a larger number of eggs than

is attributed to it in Dr. Brewer's book (four). I have frequently seen, late in the season, six, seven or eight young birds standing around the mouth of a burrow, isolated from others in such a manner that I could not suppose that they belonged to two or more families.' . . .

"The notes of the Burrowing Owl are peculiar. The birds do not 'hoot,' nor is there anything lugubrious or foreboding in their cry. Sometimes they chuckle, chatter and squeal in an odd way, as if they had caught a habit of barking from the 'dogs' they live with, and were trying to imitate the sound; but their nocturnal cry is curiously similar to that of the Rain Crow or Cuckoo of America—so much so, that more than one observer has been deceived. They scream hoarsely when wounded and caught, though this is but seldom, since, if any life remains, they scramble quickly into a hole, and are not easy to recover. The flight is perfectly noiseless, like that of other Owls, owing to the peculiar downy texture of the plumage. By day they seldom fly far from the entrance of their burrow, and rarely, if ever, mount in the air. I never saw one on the wing more than a few moments at a time, just long enough for it to pass from one hillock to another, as it does by skimming low over the surface of the ground, in a rapid, easy, and rather graceful manner. They live chiefly upon insects, especially grasshoppers; they also feed upon lizards, as I once determined by dissection, and there is no doubt that young prairie dogs furnish them many a meal. Under ordinary circumstances, they are not very shy or difficult to procure; I once secured several specimens in a few minutes, and, I fear, left some others to languish and die in their holes. As commonly observed, perched on one of

the innumerable little eminences that mark a dog town, amid their curious surroundings, they present a spectacle not easily forgotten. Their figure is peculiar; with their long legs and short tail, the element of the grotesque is never wanting. It is hard to say whether they look most ludicrous as they stand stiffly erect and motionless, or when they suddenly turn tail to duck into the hole, or when engaged in their various antics. Bolt upright, on what may be imagined their rostrum, they gaze about with a bland and self-satisfied but earnest air, as if about to address an audience upon a subject of great pith and moment. They suddenly bow low, with profound gravity, and, rising abruptly, they begin to twitch their faces and roll their eyes about in the most mysterious manner, gesticulating wildly, every now and then bending forward till the breast almost touches the ground, to propound the argument with more telling effect; then they face about to address the rear, that all may alike feel the force of their logic; they draw themselves up to the fullest height, outwardly calm and self-contained, pausing in the discourse to note its effect upon the audience and collect their wits for the next rhetorical flourish. And no distant likeness between these frothy orators and others is found in the celerity with which they subside and seek their holes on the slightest intimation of danger."

Eggs usually four to seven (as high as eleven have been taken), 1.22x1.04; pure white; in form, subspherical.

XXXIX.—MOURNING DOVE.

Zenaidura macroura (LINN.).

Summer resident; abundant; an occasional winter sojourner in the southern part of the State. Begin laying the last of April.

HABITAT. The whole of temperate North America, north to the British possessions, south to the West Indies and Panama.

Iris dark brown; bill black; legs and feet lake red; claws horn blue.

This familiar bird is extensively distributed throughout the United States, from southern New England and Washington southward; breeding throughout its range. It adapts itself readily to its surroundings, and is as much at home on the dry plains as in the clearings of the moist woodlands. Its plumage does not appear to be affected by the climate. I have specimens in the "Goss Ornithological Collection" shot at Neah Bay, Washington, San Pedro, Martir Isle, Gulf of California, and in Kansas, and have shot the birds in New England, and in southern Central America, and so far fail to find any difference in coloration that will hold good.

Its food consists of insects, berries and grains, the latter gleaned chiefly from the fields. It is a harmless bird, that by its innocent ways readily wins the heart and protection of man. Its flight is vigorous and strong, and the rapid strokes of its wings cause a whistling sound. During the pairing season the male often circles and sails above his mate, with tail expanded, and upon the ground struts about with nodding head, and feathers spread in a graceful

manner. His mournful cooing love note, so pleasing to the female, wafts to my ears one of the saddest sounds in nature. The birds while mated are true and devoted to each other. At the close of the breeding season they collect together in small flocks, usually family groups.

Their nests are placed on the forks of low, horizontal branches of trees, on grape vines, and upon the ground; when built off the ground, a loose slight platform, constructed of twigs, a few stems of grass, and leaves. Eggs two, 1.12x.85; white; in form, elliptical to oval.

XL.—PASSENGER PIGEON.

Ectopistes migratorius (LINN.).

Irregular summer resident; rare; a few to my knowledge breed occasionally in the Neosho valley. Arrive early in March; begin laying by the middle of April.

HABITAT. Eastern North America, from Hudson's Bay southward, and west to the Great Plains; casually westward to Nevada and Washington; Cuba.

Iris red; bill and claws black; legs and feet lake red.

This species—commonly called the Wild Pigeon—so abundant formerly, is fast disappearing, though still to be found in numbers within the Indian Territory and portions of the southern States. They are irregular wanderers, the gypsies among birds; their natural home, however, is within the wooded lands, and they are therefore seldom met with upon the broad prairies.

The following interesting description of these birds is from "North American Land Birds," Vol. III, p. 370:

"The Wild Pigeon appears to be almost entirely influenced in its migrations by the abundance of its food,

excepting in those parts of the country in which it has not been known to remain during the winter. Even in these movements it is largely influenced by instinctive considerations of food. Evidently the temperature has but little to do with their migrations, as they not unfrequently move northward in large columns as early as the 7th of March, with a thermometer twenty degrees below the freezing point. In the spring of 1872 a large accumulation of these birds took place early in March, in the eastern portion of New York. They were present in the forests about Albany, and were taken in such immense numbers that the markets of New York and Boston were largely supplied with them.

"As early as the 10th of March they were ascertained to have in their ovaries full grown eggs ready for exclusion. In Kentucky they have been known, according to Audubon, to remain summer and winter in the same district for several successive years, in consequence of great abundance of food, while in other parts of the State none were to be met with. They suddenly disappeared as soon as the beechmast had become exhausted, and did not return for a long period.

"The Wild Pigeons are capable of propelling themselves in long-continued flights, and are known to move with an almost incredible rapidity, passing over a great expanse of country in a very short time. It is quite a common and well-ascertained fact that Pigeons are captured in the State of New York with their crops still filled with the undigested grains of rice that must have been taken in the distant fields of Georgia or South Carolina, apparently proving that they much have passed over the intervening

space within a very few hours. Audubon estimates the rapidity of their flight as at least a mile a minute.

“The Wild Pigeons are said to move, in their flight, by quickly-repeated flaps of the wings, which are brought more or less near to the body, according to the degree of velocity required. During the love season they often fly in a circling manner, supporting themselves with both wings angularly elevated. Before alighting they break the force of their flight by repeated flappings.

“Their great powers of flight, and the ability thus given to change at will their residence, and their means of renewing a supply of food, are also thought to be seconded by a remarkable power of vision, enabling them to discover their food with great readiness. Mr. Audubon states that he has observed flocks of these birds, in passing over a sterile part of the country, fly high in the air, with an extended front, enabling them to survey hundreds of acres at once. When the land is richly covered with food, or the trees well supplied with mast, they fly low in order to discover the part most plentifully supplied. . . .

“In its movements on the ground, as also when alighted on the branches of trees, the Wild Pigeon is remarkable for its ease and grace. It walks on the ground and also on the limbs of trees with an easy, graceful motion, frequently jerking its tail and moving its neck backward and forward.

“Mr. Audubon states that in Kentucky he has repeatedly visited one of the remarkable roosting-places to which these birds resort at night. This one was on the banks of Green River, and to this place the birds came every night at sunset, arriving from all directions, some of them from the distance of several hundred miles, as was

conjectured from certain observations. The roost was in a portion of the forest where the trees were of great magnitude. It was more than forty miles in length, and averaged three in breadth. It had been occupied as a roost about a fortnight when he visited it. The dung was several inches deep on the ground. Many trees had been broken down by their weight, as well as many branches of the largest and tallest trees. The forest seemed as if it had been swept by a tornado. Everything gave evidence that the number of birds resorting to that part of the forest must be immense. A large number of persons collected before sunset to destroy them, provided with torches of pine knots, and armed with long poles and guns. The Pigeons began to collect after sunset, their approach preceded, even when they were at a distance, by a noise like that of a hard gale at sea sounding in the rigging of a vessel. As the birds passed over him, they created a strong current of air. The birds arrived by thousands, fires were alighted, and the work of destruction commenced. Many were knocked down by the pole men. In many cases they collected in such solid masses on the branches that several of their perches gave way and fell to the ground, in this way destroying hundreds of the birds beneath them. It was a scene of great confusion and continued until past midnight, the Pigeons still continuing to arrive. The sound made by the birds at the roost could be heard at the distance of three miles. As day approached, the noise in some measure subsided; and long before objects were distinguishable the Pigeons began to move off, and before daylight all that were able to fly had disappeared. The dead and wounded birds were then

collected and piled into heaps by those who had assembled for the purpose.

“Though for the most part living, moving and feeding together in large companies, the Wild Pigeon mates in pairs for purposes of breeding. They have several broods in the season, and commence nesting very early in the spring, the time being considerably affected by the amount of food.”

Their nests are placed on trees, and in communities; a slight platform structure of twigs, without any material for lining whatever. Eggs two, 1.45×1.05 ; white; in form, varying from elliptical to oval.

XLI.—BOB-WHITE.

Colinus virginianus (LINN.).

Resident; abundant from the eastern to the middle portion of the State, moving westward and increasing with its settlement. Begin laying the last of April.

HABITAT. Eastern United States; north into Lower Canada; south to the Gulf States; west to Dakota, Kansas, Indian Territory and eastern Texas.

Iris brown; bill dark brown, usually pale brown at base of under mandible; legs and feet pale bluish to brownish gray; claws black.

This familiar species is generally known in the New England and Middle States as the Quail, and in the Southern States as the Partridge. These names belong to other and quite different—though closely allied—birds. At the suggestion of Prof. Baird, “Bob-white,” its cheerful call note, has become its accepted and present name. The birds appear to thrive best in the presence of man, and,

were they protected and fed during our cold winters, would soon become quite tame. They often nest near our dwellings. In the spring of 1867, I was shown, on Owl Creek, Woodson county, Kansas, a nest containing nineteen eggs. It was placed in the dooryard, and not over twenty-five yards from the house; several dogs were running about the yard, and the house cat was purring in the doorway. Fearing the eggs would be destroyed, I suggested the building of a high tight fence around the nest. "Oh!" said the farmer, "that is not necessary; our cats and dogs will not harm them, for they know them well; as they have for a long time run about with the chickens, and feed with them from food thrown from the door step." I am confident if man was as friendly to the birds as they are to man, that they would soon become thoroughly domesticated. Trapped and hunted as they are, with dog and gun, it is not strange that, as a whole, they remain timid and mistrustful, and, were they not naturally birds of civilization, would rapidly disappear with the settlement of a country. As it is they seem to realize that man is only at times their enemy, and that his cultivated fields afford them a safe resort from their many other enemies, and insure a more certain and bountiful supply of food than found elsewhere.

In the destruction of injurious insects, and the seeds of weeds, upon which they largely feed, they more than doubly repay for the few grains eaten prior to the harvest.

Their flesh is highly esteemed, and to the wing shot a most attractive game bird. When startled, rise with a loud whirring sound; in flight very swift, low, and direct; a rather laborious effort, dropping back into the first in-

viting cover. They do not, like our Prairie Hens, collect in large flocks, but move about in small coveys or family groups; pairing during the breeding season, and, although not strictly true to each other in their marriage relations, are very attentive and share alike in the duties of protecting and rearing the young.

Their nests are placed on the ground, in a depression, usually in the grass upon the prairies, sometimes in a thicket, under a low bush; composed of grasses, and usually arched over, with entrance on the sides. Eggs fifteen to twenty, 1.20x.97; pure white; in shape, pyriform. Nests found with a larger number of eggs, I think the product of two or more females.

XLII.—PRAIRIE HEN.

Tympanuchus americanus (REICH.).

Common in the eastern to middle portion of the State, and spreading westward with its settlement. Formerly abundant, but rapidly decreasing in numbers, and, unless the law protecting them is strictly enforced, especially so far as it relates to trapping, they will soon become exterminated; for during the extreme cold winters, when the ground is covered with snow, hunger overcomes their fear, and the last one is easily entrapped.

HABITAT. Prairies of the Mississippi valley, east to Indiana and Kentucky; north to Manitoba; west to eastern Dakota; south to Texas and Louisiana. (The eastern bird, *T. cupido*, until of late supposed to be this species, is now apparently extinct, except on the Island of Martha's Vineyard.)

Iris brown; bill and claws dark brown; feet yellowish.

This familiar game bird inhabits our fertile prairies, seldom frequenting the timbered lands, except during sleety storms, or when the ground is covered with snow. Its flesh is dark, and it is not very highly esteemed as a table bird.

During the early breeding season they feed largely upon grasshoppers, crickets and other forms of insect life, but afterward chiefly upon our cultivated grains, gleaned from the stubble in autumn and the corn fields in winter; they are also fond of tender buds, berries and fruits. They run about much like our domestic fowls, but with a more stately carriage. When flushed, rise from the ground with a less whirring sound than the Ruffed Grouse or Bob-white, and their flight is not as swift, but more protracted, and with less apparent effort, flapping and sailing along, often to the distance of a mile or more. In the fall the birds collect together, and remain in flocks until the warmth of spring quickens their blood, and awakes the passions of love; then, as with a view to fairness and the survival of the fittest, they select a smooth, open courtship ground, (usually called a "scratching ground,") where the males assemble at the early dawn, to vie with each other in courage and pompous display, uttering at the same time their love call, a loud booming noise; as soon as this is heard by the hen birds desirous of mating, they quietly put in an appearance, squat upon the ground, apparently indifferent observers, until claimed by victorious rivals, which they gladly accept, and receive their caresses. I have often lain and watched their amorous actions, described in so lifelike a manner by Audubon. His statement that the vanquished and victors alike leave

the grounds to search for the females is true, but he omits to state that many are present, and mate upon the "scratching grounds." The birds are not strictly true to each other during the love season, and this is true of most birds when the assistance of the male is not required in hatching and rearing of the young.

Their nests are placed on the ground in the thick prairie grass, and at the foot of bushes on the barren ground; a hollow scratched out in the soil, and sparingly lined with grasses and a few feathers. Eggs eight to twelve, 1.68x1.25; tawny brown, sometimes with an olive hue, and occasionally sprinkled with brown; in form, rather oval. A set of nine eggs, collected at Pewaukee, Wisconsin, May 27th, 1883, measure: 1.65x1.27, 1.64x1.24, 1.66x1.22, 1.69x1.23, 1.62x1.24, 1.69x1.28, 1.61x1.27, 1.64x1.26, 1.64x1.25.

XLIII.—KILLDEER.

Aegialitis vocifera (LINN.).

Summer resident; abundant. Arrive the last of February to first of April; begin laying about the middle of April; remain until late in the fall.

HABITAT. The whole of temperate North America; breeding throughout its range; wintering from the Gulf coast and southern California, south into northern South America.

This noisy, familiar species frequents alike the high prairies, the low lands, margins of streams or pools of water; in fact, appears to be at home wherever it may alight. As a rule it is easily approached, not being either wise or timid. While collecting in the winter of 1889,

at Coatapeec, Mexico, a pair came daily to feed and dress up their feathers beside a little run or gutter in the center of the narrow paved street opposite my room in the hotel, regardless of the people on the sidewalks, only running or dodging to avoid a person crossing, or to keep out of the way of the pack mules, etc., that are almost continually passing; and it is not uncommon for the birds to alight upon our streets and within our dooryards. Upon the ground they run swiftly, but with too stiff legs to be graceful, often squatting to rest or hide.

The parent birds both assist in hatching and raising the young; and are very solicitous and demonstrative in their efforts to protect them; and, in doing so, beautifully display, with quivering wings and fan-spread tail, their varied colors. Upon the wing they are swift and easy, and at all times make known their approach and presence in a vociferous manner. Their food consists chiefly of insect life.

Their nests are placed on the dry ground, in a small depression, usually beneath a bunch of grass or weeds, in the vicinity of streams and pools of water, lined sparingly with bits of old grass or weeds, chiefly about the edges. Eggs usually four, 1.45x1.05; buff to drab white, spotted and blotched with umber and blackish brown; thickest about larger end; pyriform in shape, very obtuse at larger end and sharply pointed at the other.

XLIV.—SPOTTED SANDPIPER.

Actitis macularia (LINN.).

Summer resident; common; in migration, abundant. Arrive the middle of April to first of May; begin laying about the middle of May; a few remain into November.

HABITAT. North America in general; breeding throughout the temperate regions and north to the Arctic coast; south in winter to Brazil and lower Uruguay, South America; occasionally in Europe.

This well-known species is quite common throughout its range, and is at home everywhere along the salt and fresh water shores, and not like most of the family restricted to a northern clime for its breeding grounds. Its quick, peculiar, balancing motions, caused by bending the knees and keeping time with the head and tail, readily attract attention and has given the sobriquet of "Teeters" or "Tipups," which can never be rubbed out. Its flight is also peculiar, usually in a low, coursing manner along the shore, with alternate motions of the wings; at first regular strokes, then with its long, pointed wings curving downward and tremulously vibrating, it sails along, uttering its usual "Peet-weet," as it goes.

Their food consists of insects and small forms of life, found at or near the water's edge.

The parents both assist in hatching and rearing of the young, which leave the nest and follow, soon after they are hatched. They run swiftly, and it is surprising how quickly they will disappear at the first note of warning, by hiding or squatting close to the ground; and in case of real danger the old birds flutter about in great distress, and in various ways try to divert attention and draw the intruder away.

Their nests are placed on the ground and lined sparingly with grasses and leaves; usually on open, dry lands near water, and in a tuft of grass or under a low bush; (I once found a nest under an old drift log). Eggs four, 1.30x-.93; creamy buff to olive drab, spotted and blotched with

dark brown and shell markings of lilac; thickest and running somewhat together around the large end; in shape, pyriform.

XLV.—YELLOW-LEGS.

Totanus flavipes (GMEL.).

Migratory; abundant. Arrive in March, a few remaining until the last of May; return in August, and tarry until early frosts.

HABITAT. The whole of North America; breeding from northern Illinois (seldom in the United States), north to within the Arctic circle; south in winter into southern South America; accidental in Europe.

Iris brown; bill black, with edge of base greenish yellow; legs and feet bright yellow; claws dark brown.

These birds are very common in the United States during migration, east of the Rocky Mountains, especially during the spring in the western portion; and, although considered rare on the Pacific side, I am inclined to think that in suitable localities it will prove to be a regular and not uncommon migrant. I met with it at Whatcom, Washington (also at San Jose, Guatemala), Capt. Chas. Bendire reports it an abundant migrant in Oregon, and it has been found breeding in Alaska.

In habits, this noisy bird does not appear to differ from the preceding species, though less watchful and more easily approached.

Their nests are mere depressions in the ground, occasionally lined with a few leaves or grasses. Eggs usually four, 1.69x1.15; cream to drab buff, spotted and blotched irregularly with varying shades of dark brown and purple shell stains; in shape, pyriform.

XLVI.—GREEN HERON.

Ardea virescens (LINN.).

Summer resident; abundant. Arrive about the middle of April; begin laying about the first of May; remain until late in the fall.

HABITAT. The whole of temperate North America, West Indies, Bermudas; north into Maine, Dakota and Oregon; south into Venezuela and Colombia, South America.

This widely-distributed and common species is a summer resident, in suitable localities, throughout the northern portion of the Union; wintering in the Southern States and southward, where it also breeds. A graceful little beauty, but for some unknown reason is in bad repute, hooted at and stoned by the boys and called bad names; it may be because it destroys daily many of the finny tribe, but in this respect does not differ from the family of which it is one of the least, and not near as destructive at the artificial fish ponds as the Night Heron, that during the night visits with noiseless wing the ponds and fountains in the very heart of the city, where it feeds undisturbed, and as silently wings itself away.

These birds are not shy, and, where not persecuted, very easily approached. Their feeding habits are similar to those of the Great Blue, but more strictly a nocturnal bird; seldom found in large flocks, and, though found breeding in rookeries, the mated pair as a rule prefer to nest alone.

Their nests are placed on the branches of trees and bushes skirting streams and ponds, and are loosely made

of sticks, and lined with twigs in leaf. Eggs four or five; average dimensions of three sets, two of four and one of five, 1.52x1.10; light greenish blue; in form, oval to elliptical oval.

XLVII.—GREAT BLUE HERON.

Ardea herodias (LILL.).

Summer resident; quite common along the streams. Arrive early in March; begin laying the last of March.

HABITAT. North America, from the Arctic regions southward into northern South America, Bermudas, West Indies and Galapagos.

These birds are quite common in suitable localities, and breed nearly throughout their range; a hardy species, that only leave their northern resorts as the ice closes their natural feeding grounds. They are solitary and silent except during the breeding season, and even then are not social, though often nesting in communities and with others of the family; they seem to have no interest in common, only coming together because the location suits them, and at such times fight fiercely for a favorite branch or place for a nest; while mated, however, the pairs are true to each other, and share alike in the duties of nest building, hatching and rearing the young. The latter is a laborious work, and requires constant labor during the day and way into the night, even where food is abundant, for their growth is rapid and digestive organs great; but when they have only their own appetites to satisfy they generally feed at morn and eve, resting during the day in swampy lands and treetops skirting the waters.

Their food consists chiefly of fishes, which they usually

secure by standing motionless in the water, with bill poised, patiently awaiting their near approach, when they are pierced with a rapid stroke of the bill, and quickly swallowed, head foremost. They also feed on frogs, meadow mice—in fact upon all small forms of digestible life.

These birds have great strength of wing, and their flight in migration is high and protracted; at other times, unless going a great distance, they flop leisurely along near the water or land. In flight the head is drawn back upon the breast, with legs extended rudder-like, in line with the body.

Their nests are placed on the branches of high trees, growing upon swampy lands and along the streams; in localities destitute of trees, upon bushes, rocks and the ground; in all cases a flat, bulky structure of sticks, lined sparingly with grasses. Eggs three to six, usually four; pale greenish blue; varying somewhat in size; in form, rather elliptical oval. A set of four, taken April 12th, 1881, on an island in Nueces Bay, measure: 2.40x1.75, 2.60x1.86, 2.65x1.80, 2.65x1.86.

XLVIII.—SANDHILL CRANE.

Grus mexicana (MULL.).

Migratory; common. Arrive about the middle of March to first of April; return early in October; a few occasionally remain as late as November 20th.

HABITAT. North in the British possessions to Manitoba, but chiefly within the United States, and west from the Mississippi valley to the Pacific coast, south into central Mexico, and eastward along the Gulf coast to Florida and Georgia, breeding in suitable localities nearly throughout its range.

These birds, in their habits, are similar to the Whooping, but much more numerous. Their loud, modulating, sonorous croak announces their presence, and is often heard during the night as well as by day.

During courtship and the early breeding season, their actions and antics at times are ludicrous in the extreme, bowing and leaping high in the air, hopping, skipping and circling about with drooping wings and croaking whoop, an almost indescribable dance and din, in which the females (an exception to the rule) join, all working themselves up into a fever of excitement, only equaled by an Indian war dance, and, like the same, it only stops when the last one is exhausted.

Eggs two. A set collected May 25th, 1880, near Jamestown, Dakota, from a nest on a marsh in a tall growth of rushes, a level platform about three feet in diameter, made of flags, leaves and rushes, are, in dimensions: 3.68x2.25, 3.82x2.40; ground color pale olive buff, spotted and splashed with sepia brown and purple shell stains, thickest at larger end; in form, elliptical oval.

XLIX.—AMERICAN COOT.

Fulica americana (GMEL.).

Summer resident; not uncommon; during migration abundant. Arrive the middle of March to the middle of April; begin laying the last of May; a few linger late into November.

HABITAT. The whole of North America, from Greenland and Alaska southward to northern South America, Bermudas, West Indies (and Trinidad?).

This species is not very common on the Atlantic coast,

north of the more southern States, but abundant westward. It breeds occasionally throughout its range, but chiefly from latitude 43° to 55° ; wintering in large flocks in the Southern States and Mexico, decreasing in numbers southward.

These birds are in many respects like their cousins, the Gallinules, which they so closely resemble; inhabiting the edges of swampy, boggy ponds, where covered with a rank growth of reeds and rushes. They differ, however, in being social, going in flocks, and in preferring the open water in which to sport and rest, or muskrat houses and bare places of land to rest and dress their feathers upon; keeping, during the breeding season, near their reedy cover, into which they quickly swim and hide, in case of danger; but in the fall of the year, preparatory to migration, they often assemble out upon the open waters.

They swim and walk with a nodding motion of the head. I have noticed them occasionally dive for food, but they are not expert divers, and seldom do so except when closely pressed and unable to fly.

Its flesh is dark and not good eating, and its feathers not soft and downy, therefore not sought after by the pot hunter, nor considered a game bird by the sportsman; and for these reasons the birds are not shy, and are easily approached. They rise from the water in a laborious, running, flapping manner, but, when fairly in the air, fly quite steadily, with neck and feet well stretched out, the head usually inclining downward and the feet a little upward. At times, before mating, they are quite noisy.

Their food consists of aquatic insects, snails, tender water plants, buds, blossoms and seeds of different plants, etc.

Their nests are placed in tall weeds and rushes growing in shallow, muddy places, in ponds and sloughs; built on the tops of the broken-down old growth that forms a platform just above the water; quite a deep, hollow nest, composed of short, bitten-off stems of the weeds and rushes. Eggs usually eight or nine—I have seen eleven in a nest, 1.92x1.32; cream white, in some cases pale olive drab, thickly and evenly speckled with dark brown; in form, oval to ovate. A set of six eggs, taken from a nest on a marsh, near Horicon, Wisconsin, are, in dimensions: 1.90x1.29, 1.92x1.33, 1.92x1.32, 1.90x1.30, 1.92x1.29, 1.92x1.33.

L.—CANVAS-BACK.

Aythya vallisneria (WILS.).

Migratory; irregular; not uncommon. Arrive early in March—my notes show the capture of one February 22d; return in October.

HABITAT. North America in general; breeding far northward.

This highly-esteemed Duck is exclusively a North American species; they have been found breeding on the inland waters from Oregon and Manitoba to Fort Yukon, Alaska, and south in winter to Guatemala. The birds are quite rare in the northeastern States, increasing in numbers westward to the Pacific coast; some seasons very common. As they associate in large flocks upon their feeding grounds, are generally thought to be more abundant than they really are.

This species, so highly prized as a game bird, is entitled to more than a passing notice; and I know that I cannot

please the reader better than to quote from Wilson's interesting description of its habits, wherein he says:

"The Canvas-back Duck arrives in the United States from the north about the middle of October; a few descend to the Hudson and Delaware, but the greater body of these birds resort to the numerous rivers belonging to and in the neighborhood of the Chesapeake Bay, particularly the Susquehanna, the Patapsco, Potomac and James rivers, which appear to be their general winter rendezvous. Beyond this to the south, I can find no certain account of them. At the Susquehanna, they are called Canvas-backs; on the Potomac, White-backs, and on the James river, Shelldrakes. They are seldom found a great distance up any of these rivers, or even in the salt water bay; but in that particular part of the tide water where a certain grass-like plant grows, on the roots of which they feed. This plant, which is said to be a species of the *Valisneria*, grows on fresh-water shoals of from seven to nine feet (but never where these are occasionally dry), in long, narrow grass-like blades of four or five feet in length; the root is white, and has some resemblance to small celery. This grass is in many places so thick that a boat can with difficulty be rowed through it, it so impedes the oars. The shores are lined with large quantities of it, torn up by the Ducks and drifted up by the winds, lying like hay in windrows. Wherever this plant grows in abundance the Canvas-backs may be expected either to pay occasional visits or to make it their regular residence during the winter. It occurs in some parts of the Hudson, in the Delaware, near Gloucester, a few miles below Philadelphia, and in most of the rivers that fall into the Ches-

peake, to each of which particular places these Ducks resort; while in waters unprovided with this nutritive plant they are altogether unknown.

“On the arrival of these birds in the Susquehanna, near Havre de Grace, they are generally lean, but such is the abundance of their favorite food, that towards the middle of November they are in pretty good order. They are excellent divers, and swim with great speed and agility. They sometimes assemble in such multitudes as to cover several acres of the river, and when they rise suddenly, produce a noise resembling thunder. They float about the shoals, diving and tearing up the grass by the roots, which is the only part they eat. They are extremely shy, and can rarely be approached, unless by strategem. When wounded in the wing, they dive to such prodigious distances, and with such rapidity, continuing it so perseveringly, and with such cunning and active vigor, as almost always to render the pursuit hopeless. From the great demand for these Ducks, and the high price they uniformly bring in market, various modes are practiced to get within gunshot of them. The most successful way is said to be decoying them to the shore by means of a dog, while the gunner lies concealed in a proper situation. The dog, if properly trained, plays back and forwards along the margin of the water, and the Ducks, observing his manœuvres, enticed perhaps by curiosity, gradually approach the shore, until they are sometimes within twenty or thirty yards of the spot where the gunner lies concealed, and from which he rakes them, first on the water, and then as they rise. This method is called ‘tolling them in.’ If the Ducks seem difficult to decoy, any glaring object, such

as a red handkerchief, is fixed around the dog's middle or to his tail, and this rarely fails to attract them. Sometimes, by moonlight, the sportsman directs his skiff towards a flock whose position he has previously ascertained, keeping within the projecting shadow of some wood, bank or headland, and paddles along so silently and imperceptibly as often to approach within fifteen or twenty yards of a flock of many thousands, among whom he generally makes great slaughter.

“Many other stratagems are practised, and indeed every plan that the ingenuity of the experienced sportsman can suggest, to approach within gunshot of these birds; but of all the modes pursued, none intimidate them so much as shooting them by night; and they soon abandon the place where they have been thus repeatedly shot at. During the day they are dispersed about, but towards evening collect in large flocks, and come into the mouths of creeks, where they often ride, as at anchor, with their head under their wing asleep, there being always sentinels awake, ready to raise an alarm on the least appearance of danger. Even when feeding and diving in small parties, the whole never go down at one time, but some are still left above on the lookout.

“When winter sets in severely, and the river is frozen, the Canvas-back retreats to its confluence with the bay, occasionally frequenting air-holes in the ice, which are sometimes made for the purpose, immediately above their favorite grass, to entice them within gunshot of the hut or bush which is usually fixed at a proper distance, and where the gunner lies concealed, ready to take advantage of their distress. A Mr. Hill, who lives near James

River, at a place called Herring Creek, informs me that one severe winter, he and another person broke a hole in the ice about twenty by forty feet, immediately over a shoal of grass, and took their stand on the shore in a hut of brush, each having three guns well loaded with large shot. The Ducks, which were flying up and down the river in great extremity, soon crowded to this place, so that the whole open space was not only covered with them, but vast numbers stood on the ice around it. They had three rounds, firing both at once, and picked up eighty-eight Canvas-Backs, and might have collected more had they been able to get to the extremity of the ice after the wounded ones. In the severe winter of 1879-80, the grass on the roots of which these birds feed was almost wholly destroyed in the James River. In the month of January, the wind continued to blow from west-northwest for twenty-one days, which caused such low tides in the river that the grass froze to the ice everywhere, and, a thaw coming on suddenly, the whole was raised by the roots and carried off by the freshet. The next winter a few of these Ducks were seen, but they soon went away again; and, for many years after, they continued to be scarce, and even to the present day, in the opinion of my informant, have never been so plenty as before.

“The Canvas-back, in the rich juicy tenderness of its flesh and its delicacy of flavor, stands unrivaled by the whole of its tribe in this or perhaps any other quarter of the world. Those killed in the waters of the Chesapeake are generally esteemed superior to all others, doubtless from the great abundance of their favorite food which these rivers produce. At our public dinners, hotels and

particular entertainments, the Canvas-backs are universal favorites. They not only grace but dignify the table, and their very name conveys to the imagination of the eager epicure the most comfortable and exhilarating ideas. Hence, on such occasions, it has not been uncommon to pay from one to three dollars a pair for these Ducks; and, indeed, at such times, if they can they must be had, whatever may be the price.

“The Canvas-back will feed readily on grain, especially wheat, and may be decoyed to particular places by baiting them with that grain for several successive days. Some few years since, a vessel loaded with wheat was wrecked near the entrance to Great Egg Harbor, in the autumn, and went to pieces. The wheat floated out in vast quantities, and the whole surface of the bay was, in a few days, covered with Ducks of a kind altogether unknown to the people of that quarter. The gunners of the neighborhood collected in boats, in every direction, shooting them; and so successful were they, that, as Mr. Beasley informs me, two hundred and forty were killed in one day, and sold among the neighbors at twelve and a half cents apiece without the feathers. The wounded ones were generally abandoned, as being too difficult to come up with. They continued about for three weeks, and during the greater part of the time a continual cannonading was heard from every quarter. The gunners called them Sea Ducks. They were all Canvas-backs, at that time on their way from the north, when this floating feast attracted their attention, and for awhile arrested them in their course. A pair of these very Ducks I myself bought in Philadelphia market at the time, from an Egg Harbor gunner,

and never met with their superior either in weight or excellence of flesh. When it was known among these people the loss they had sustained in selling for twenty-five cents what would have brought them from a dollar to a dollar and a half a pair, universal surprise and regret were naturally enough excited."

The nests of this bird are usually found in thick growths of grass, reeds and rushes growing in shallow water. They are made of grasses and material at hand, are built from the ground up, and often quite bulky, and are lined with down. Eggs usually seven or eight, 2.50x1.76; pale grayish olive green; in form, oval to ovate.

LI.—DOUBLE-CRESTED CORMORANT.

Phalacrocorax dilophus (Sw. & Rich.).

Migratory; not uncommon. Arrive the last of March to the first of April. To be looked for in the old deep channels of the rivers in the low timbered lands. Return in October.

HABITAT. Northern North America; south in winter to the Gulf coast; breeding from the Bay of Fundy northward, and westward to Manitoba.

The birds are abundant on the northeast coast, decreasing in numbers westward to the Rocky Mountains. They have been reported west of the Rockies, and breeding there, but the specimens taken on the Pacific side prove to be an intermediate race between this species and *albo-ciliatus*.

The birds subsist chiefly upon fish, which they capture by diving and pursuing beneath the water, with a speed the swiftest of the finny tribe seldom escape, coming to

the surface with their capture, tossing the same in the air and catching it head first as it falls, so that the fins will not prevent its passing into the stomach. The throat readily expands and enables them to swallow fish larger than the neck in its normal condition. I have often noticed the birds when resting upon a log, or perched upon a limb over the water, suddenly drop and disappear beneath its surface at the sight of a fish, catching it, however, in a fair chase, and not, like the Gannet or Kingfisher, by a plunge upon their prey.

All the birds of this family are voracious eaters, and the craving for food makes them active hunters, and they are successfully used in many places by the fishermen, who tie a string around their neck to prevent their swallowing the fish they catch. The Chinese especially rear and train the birds upon their boats for fishing, with great success. Le Comte says: "To this end they are educated as men rear up spaniels or hawks, and one man can easily manage a hundred. The fisher carries them out into the lake, perched on the gunnel of the boat, where they continue tranquil, and expecting his order with patience. When arrived at the proper place, at the first signal given each flies a different way to fulfill the task assigned it. It is very pleasant on this occasion to behold with what sagacity they portion out the lake or the canal where they are upon duty. They hunt about, they plunge, they rise an hundred times to the surface, until they have at last found their prey. Then they seize it with their beak by the middle, and carry it without fail to their master. When the fish is too large they then give each other mutual assistance—one seizes it by the head, the other by the tail,

and in this manner carry it to the boat together. There the boatman stretches out one of his long oars, on which they perch, and being delivered of their burden, they fly off to pursue their sport. When they are wearied he lets them rest for awhile; but they are never fed till their work is over. In this manner they supply a very plentiful table; but still their natural gluttony can not be reclaimed even by education. They have always, while they fish, the same string fastened around their throats to prevent them from devouring their prey, as otherwise they would at once satiate themselves and discontinue the pursuit the moment they had filled their bellies."

The birds breed in communities, and where the ground or rocks will admit, their nests are placed close together. On the last of July, 1880, I found the birds breeding in the Gulf of St. Lawrence, on the sides of the cliffs on Bonaventure Isle, and on the top of Perce Rock. The latter cannot be climbed, and nearly all the nests upon the Isle were beyond reach; those examined, however, had young birds from half to nearly full grown, and hundreds of little fellows could be seen either upon their nests or standing near by upon the rock.

The birds are very filthy, and the stench about their breeding grounds sickening. Their nests are made of sticks, moss from the rocks, and seaweed. Eggs three or four, 2.50x1.56; pale bluish green, coated with a white chalky substance, but more or less stained in their dirty nests; in form, elongate ovate.

CLASSIFICATION OF BIRDS MENTIONED.

I. Perching Birds (*Passeres*).

(a) The Song Perchers.

Bluebird.	Robin.
Chickadee.	Brown Creeper.
Catbird.	Wren.
Brown Thrasher.	Oven-bird.
Yellow-throated Vireo.	White-humped Shrike.
Barn Swallow.	American Goldfinch.
Junco.	Fox Sparrow.
Meadow Lark.	Bobolink.
Cowbird.	Baltimore Oriole.
Orchard Oriole.	Blue Jay.
Crow.	

(b) The Songless Perchers.

Kingbird.	Fly-catchers.
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II. Picarian Birds (*Picariæ*).

Whippoorwill.	Nighthawk.
Swift.	Hummingbird.
Kingfisher.	Cuckoo.
Woodpecker.	

III. Birds of Prey (*Raptores*).

Owl.	Hawk.
Vulture (Turkey Buzzard).	Eagle.

IV. Columbine Birds (*Columbæ*).

Dove.	Pigeon.
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V. Scratching Birds (*Gallinæ*).

Domestic Chicken.	Prairie Chicken.
Quail.	

VI. Shore Birds (*Limicolæ*).

Snipe.	Plover.
Sandpiper.	

VII. Heron Family (*Herodiones*).

Heron.

VIII. Crane Family (*Alectorides*).

Crane.

Rail.

Coot.

IX. Family of Geese and Ducks (*Lamellirostres*).

Domestic Ducks and Geese.

Wild Ducks and Geese.

X. Totipalmate Swimmers (*Steganopodes*).

Pelican.

Comorant.

XI. Long-winged Swimmers (*Longipennes*).

Gull.

Tern.

XII. Diving Birds (*Pygopodes*).

Grebe.

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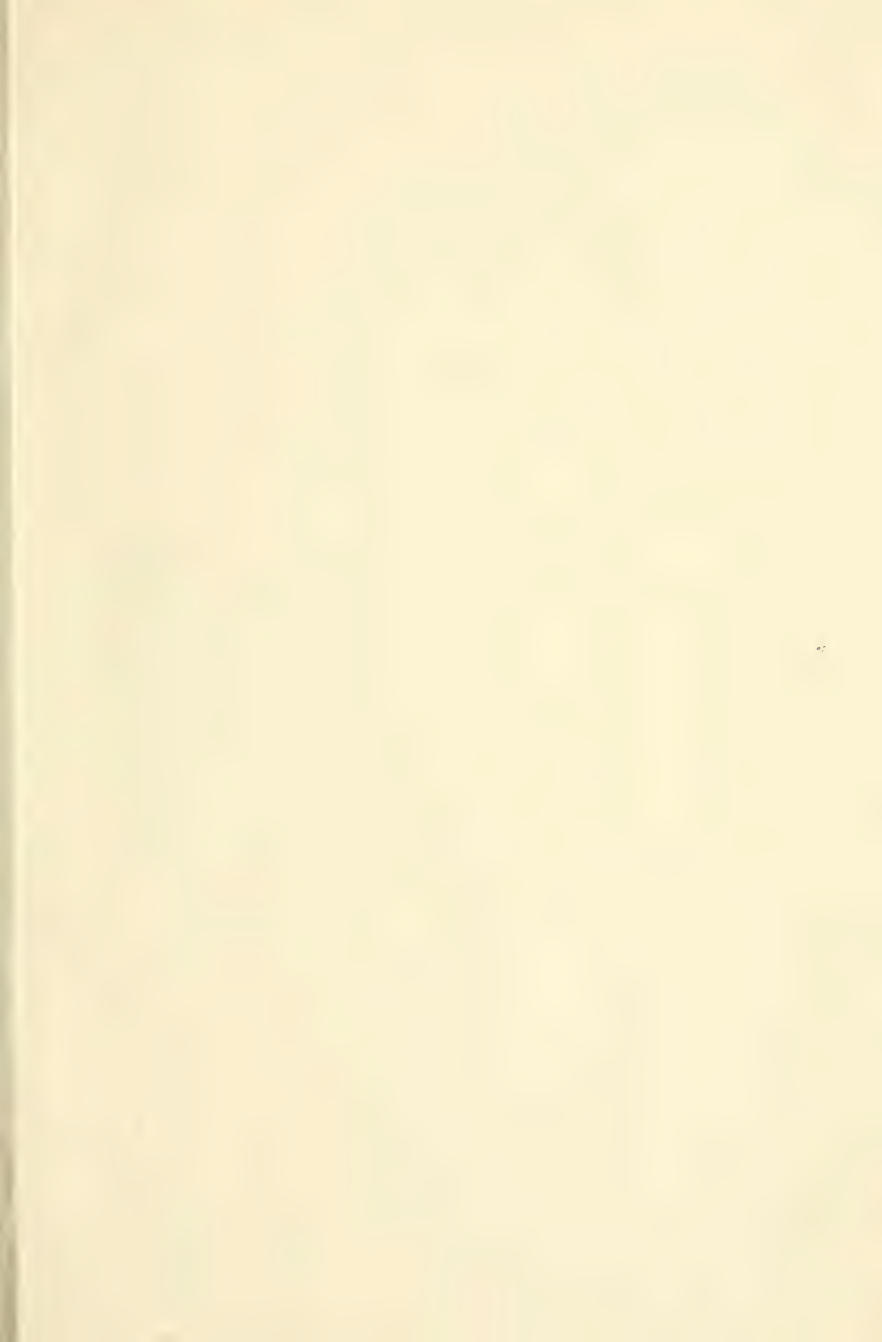
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